Qatar Islamic Archaeology and Heritage Project

End of Season Report : Spring 2013

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1. Introduction

Sandra Rosendahl

1.1 Qatar Islamic Archaeology and Heritage Project

This report summarises the fieldwork undertaken by the Qatar Islamic Archaeology and Heritage (QIAH) Project from March 1 to May 26 2013. The fieldwork was undertaken by the Department of Cross-Cultural and Regional Studies, University of Copenhagen in partnership with, and funded by, the Qatar Museums Authority.

Work this season consisted of continued excavations in Al Zubarah and Freiha; the completion of the fieldwalking survey of the UNESCO Buffer Zone; a large-scale programme of finds processing and specialist analysis; intensified conservation and restoration efforts in Al Zubarah town and within the Fort; and an extensive outreach and site presentation schedule.

In June 2013, Al Zubarah Archaeological Site was inscribed to the UNESCO World Heritage List as a site of significant cultural and historical value (Criteria iii, iv and v), and preparations are being made for the formal opening of the site in December 2013.

1.2 Archaeological Investigations in Al Zubarah and Freiha (Chapters 2 and 3)

Excavations in Al Zubarah concentrated on three areas:

- continued investigations into the *souq* and warehouse district in ZUEP02 (Chapter 2.1);
- extension of the excavations in the palatial compound at ZUEP04 into a second precinct (Chapter 2.2)
- a new excavation area ZUEP13 examining a small section of the Outer Town Wall near Tower 18, northeast of the palace (Chapter 2.3).

Work in the market area of ZUEP02 is beginning to demonstrate a major economic focus of the settlement in the late 18th century in the form of large-scale date processing and storage facilities attached to and integrated into the *souq*. In addition, a first glimpse into an even earlier phase of beachfront architecture, possibly related to the initial settlement of Al Zubarah, was uncovered.

In the palatial compound at ZUEP04, excavations of a series of large pits in the northern section of the central courtyard highlighted an interesting building technique, by which clean shell and sand for the laying of the internal surfaces was extracted from inside the courtyard during its occupation, and backfilled with mostly sterile material.

The start of investigations into a new precinct to the north of the well-excavated Precinct 8 yielded particularly spectacular evidence of the inhabitants' relationship to the sea and the pre-eminent role that pearlfishing played in their lives. A series of etchings of dhows and dhow-related features into the plaster of small internal spaces demonstrate not only the exceptional degree of preservation in this compound, evidenced also by the presence of nearly complete collapsed archways, but also an artistic and very human side to the archaeology of this high-status building.

The work at ZUEP13 aimed to identify any relationship between Tower 18 on the Outer Town

Wall (OTW) and the large open space directly behind it, as well as to investigate the earliest phase of the construction of the OTW. Activities inside the wall were much more limited in comparison to the sequence of events at ZUEP10 near Tower 8 (Wheeler 2012). Unlike ZUEP10,

Figure 1.1: Plan of Al Zubarah showing areas excavated and conserved in spring 2013

a midden had accumulated on the outside of the wall, further analysis of which might yield meaningful information about the use of this area.

ZUEP04 and ZUEP13 were also targets of conservation work, consisting of the documentation of the state of walls and historic plasters, as well as continued consolidation and repair (Chapter 7).

The investigations at Freiha were finalised this season by a targeted excavation into the earliest layers of the domestic area at FREP04. Ephemeral structures evidenced primarily by foundation cuts and remains of pisé walls, as well as abundant activity areas in the form of *tannur* and post hole clusters, suggest a connection with a similarly constructed area FREP03 to the northeast.

1.3 Fieldwalking Survey in the UNESCO Buffer Zone (Chapter 4)

Survey this season consisted of fieldwalking of a final set of transects in the UNESCO Buffer Zone in order to establish the nature of the historical occupation and usage of the area, as well as the role of this wider landscape in the history of Al Zubarah. A variety of site types ranging from early prehistoric to modern periods, including possibly early Islamic settlements and settlements acting as agricultural support and water supply for Al Zubarah, have been recorded and added to the Qatar National Heritage and Environment Record (QNHER).

1.4 Finds and Specialist Analyses (Chapters 5 and 6)

Finds processing and analysis of material groups such as fish bone, shell and invertebrates, archaeobotanical remains and ceramics is beginning to add a wealth of information about diet, trade relations, and spatial and social differentiation of domestic and industrial activities in Al Zubarah and Freiha. Some results are outlined in this report, but more analysis is required to gain a real insight into people's habits and resources.

1.5 Conservation and Restoration (Chapter 7)

Restoration efforts continued to focus on Al Zubarah Fort, where the ground floor rooms were prepared for the installation of a Visitor Centre, as well as on the conservation of walls in the palatial compound at ZUEP04 and the Outer Town Wall at ZUEP13. Work in the archaeological areas has benefitted greatly from a close cooperation between restorers and archaeologists, and new insights into architectural building techniques were gained.

1.6 Heritage and Outreach Activities (Chapter 8)

A wide range of presentation and heritage activities were carried out in the spring season. These included the placement of newly-designed panels along the southern visitor track in Al Zubarah, the preparation and design of supplementary information and documentation for the UNESCO World Heritage nomination, and the production of an illustrated children's book telling the story of the town. Children were also the primary focus of tours around the site, as a large number of school groups came for visits as part of their history curriculum.

1.7 Appendices

Full stratigraphic reports of the excavations, as well as extended reports of specialist analyses,

heritage and restoration work can be found on the accompanying CD.

1.8 Archaeological Phases in Al Zubarah

Since the first attempt at phasing the archaeological remains across the various areas of investigation in Al Zubarah (Richter 2010), further excavations have helped to tighten the chronology in accordance with historical events (cf. Nymann 2012). Major site-wide phases are represented well in the stratigraphy of particularly ZUEP01 and ZUEP02, which also show substantial sub-phasing allowing the distinction of construction, occupation and abandonment events. These phases remain preliminary until correlation with absolute dating from sealed contexts, but offer a valuable chronological tool already. Table 1.1 shows the main phases of the town and how they are represented in the stratigraphy of each excavation point.

Excavation Points not included here are small test trenches yielding no stratigraphic information (ZUEP07, ZUEP08, ZUEP09, ZUEP11) and Al Zubarah Fort (ZUEP12), which falls entirely within Phases I and II.

Zubarah	ZUEP01	ZUEP02	ZUEP03	ZUEP04	ZUEP05	ZUEP06	ZUEP10	ZUEP13	Comments
I	1	1	1	1	1	1	1/2	1	Sporadic use of the site; construction of modern road; post-1950s use
II	2	2	1	1	-	-	1/2	1	Ephemeral settlement, windbreaks, enclosures, *tannurs*; early 20th century occupation
III	3	3	2	1	-	2	3/4	1	Second Main Occupation; low-quality building materials and technique; Inner Town Wall and towers built; mid to late 19th century occupation
IV	4	4	3	2	-	-	3/4	1/2	Ephemeral occupation; tents/huts in ZUEP01 and ZUEP02 following settlement decline; lots of post holes and/or tannurs; between 1811 and later 19th century occupation
V	5	5	4	5	3-5	3	5	2	First Main Occupation; fortified compounds and courtyard houses; high-quality building materials and technique; Outer Town Wall and towers built; c. 1766 to 1811
VI	6	6	6/5	-	6/5	-	6/5	-	Ephemeral occupation; tents/huts in ZUEP01 and ZUEP03, some architectural evidence in ZUEP02; earliest occupation, possibly pre-1766

Table 1.1: Archaeological Phases at Al Zubarah. Shaded fields indicate main phases of activity in excavation areas.

1.9 Archaeological Phases in Freiha

The archaeological phases at Freiha have undergone a series of revisions during the excavation period. The phases of the mosque (FREP01) are not currently stratigraphically joined to the main sequence in the domestic area (FREP04), but further dating of deposits and materials from both excavation points may allow stronger statements about chronological links in the future.

The phases at Freiha are unrelated to those at Al Zubarah, although contemporary occupations at times cannot be ruled out. Further analysis and comparison of material culture will aid in the discussion of the role of Freiha in the history of Qatar.

Freiha	FREP01	FREP04	Comments
I	1	1	Extensive stone-built architecture with many alterations to space usage. Large midden accumulations. A lot of external activity.
II	2	2	First construction of stone-built architecture, centered on a date press. Domestic activity.
III	3	3	Semi-permanent occupation. Fire pits and tannurs on rubble layers. Lime-mortar making pits suggest possible stone-built architecture elsewhere on site.
IV	4	4	Construction of mudbrick and pisé buildings indicating more permanent occupation. Many tannurs.
V	5/6	5	Barasti-style temporary occupation. Many fire pits.
VI	5/6	6	Courtyard building of mudbrick and barasti-style occupation on natural sands. Extensive external activity.

Table 1.2: Archaeological Phases at Freiha. FREP01 phases are preliminary at this stage.

2. Excavations in Al Zubarah

2.1 Al Zubarah Excavation Point 2 (ZUEP02)

Michael House

2.1.1 Introduction

Al Zubarah Excavation Point 2 (ZUEP02) is located inside the inner town wall, slightly to the north of centre overlooking the beach. Three distinct areas are under investigation here: the Main Compound (Eastern Area); the Northern Extension connecting to the *souq* (QMA1); and the Western Area (Figure 2.1). Excavations here have uncovered the full range of occupation of Al Zubarah, including and in particular the market and warehouse district of the two main urban phases (Phase 5 and Phase 3).

The majority of the Phase 3 architecture has been removed in previous seasons (see House 2010, 2011, 2012), with work now concentrating on the excavation and preservation of the Phase 5 architecture.

The spring 2013 season had the following objectives:

- Eastern Area:

  To finish exposing the final three spaces in the Main Compound and remove the rubble from the adjacent street to the west (Space 72)

- Western Area:

  To continue work on the partially exposed structures west of the street (Space 72) overlooking the beach

- Northern Extension:

  To remove all remaining Phase 3 and Phase 4 deposits and expose the Phase 5 architecture in plan, with any infills to be excavated in future seasons

Fieldwork this season was a direct continuation of the work conducted over the last four seasons, and as a result the overall goal continued to be the better understanding of the area and its function throughout the development of Al Zubarah.

A more detailed outline of the complex stratigraphy can be found in the technical report (see Appendix).

2.1.2 Phase 6 - Architecture

This phase, considered to relate to temporary occupation prior to or during the construction of the Phase 5 architecture, has until now been associated only with ephemeral post-built structures or open-air activity in ZUEP01 and ZUEP03 in the form of post holes, fire pits and **tannurs**. For the first time, the Western Area of ZUEP02 has produced evidence for a stone-built structure with plastered walls, likely one of the first permanent architectural features at Al Zubarah.

Figure 2.1: ZUEP02 Post-excavation kite photo. North at top. (IE-0513)

This early structure, of which currently only the NW corner is exposed, is located just to the west of Space 83 at the base of a large later pit truncating the western wall of this Phase 5 space.

2.1.3 Phase 5 - Plastered Beach- & Limestone Architecture

This is the first of two major architectural phases identified site-wide at Al Zubarah, consisting of well-constructed walls of beach- and limestone with hard-plastered walls and surfaces. This phase clearly demonstrates an economic boom time for the settlement (c. 1766 - 1811), and shows careful town planning and evidence of a well-established hierarchy. Within ZUEP02, this phase is represented by two large courtyard compounds separated by a street (Space 3), and within the Northern Extension a possible continuation of the *souq* (Figure 2.2). The architecture is generally aligned east to west. At present none of the Phase 5 walls have been fully excavated.

Eastern Area

Almost all of the Phase 5 architecture exposed so far is associated with two courtyard compounds or estates bounded by two parallel streets aligned on an east to west axis and running towards the sea. The first compound, partially excavated in 2009/2010 (House 2010), consisted of six rooms to the north of the street (Space 3).

The second, southern compound is formed of at least 24 extant spaces, and like the first continues beyond the eastern limit of excavation. The compound is constructed around a central courtyard (Space 47), with a second courtyard to the west. The compound had three date processing rooms (*madbasat*), each consisting of ridged, plastered pressing channels divided by a low plastered wall from a smaller catchment room/space with a small pit designed to house a ceramic vessel to catch the drained syrup from the adjacent space.

The presence of these three large *madbasat* suggest a function of the compound related to storage and production rather than as a domestic structure, and it likely had a direct link to the *souq* located further to the north (QMA1).

Of the three final rooms excavated in this compound this season (Figure 2.3), Space 69 was the earliest, and with Spaces 62 to the east and 66 to the north formed a NW extension to the Main Compound. The room was plastered throughout, covering both floor surface and walls. An entrance to the space existed in its western wall, originally allowing access from the street (Space 72) and later into Space 70. The room had several features of note: located along the eastern wall were the scars of three evenly spaced plastered screens of unknown function (Figure 2.4); north of these, also projecting from the eastern wall, was a fourth, larger screen also leveled to the floor surface and only visible as a scar, effectively dividing the room. The floor surface byond this point was highly fragmented. At the centre of the space was a small fire pit and at the southern limit a pit which may have initially housed a ceramic vessel sunk into the floor. Several red stains (Figure 2.4 insert) on the plaster surface of the room and on some of the ceramics removed from the overlaying deposits suggest that the space may have served a function related to the textile-dyeing industry. Part of the southern and western wall of the structure had been robbed for their stone most likely for preparation for the construction of the Phase 3 compounds. Within the rubble collapse interface with the floor surface were several fragments, now reconstructed, of a particularly striking incense bowl; this is thought to originate from Oman (Figure 2.5).

Spaces 70 and 73 were the final additions to the compound. Space 70 ran parallel with the earlier Space 69 and as also plastered on both floor and walls, suggesting a similar function. Scattered across the surface at the base of the walls were remains of several broken ceramic vessels of mostly comb-decorated creamy sandy ware. Evident across the surface were several repairs and burnt spots; like the ceramic spread, these small fires were likely part of the abandonment

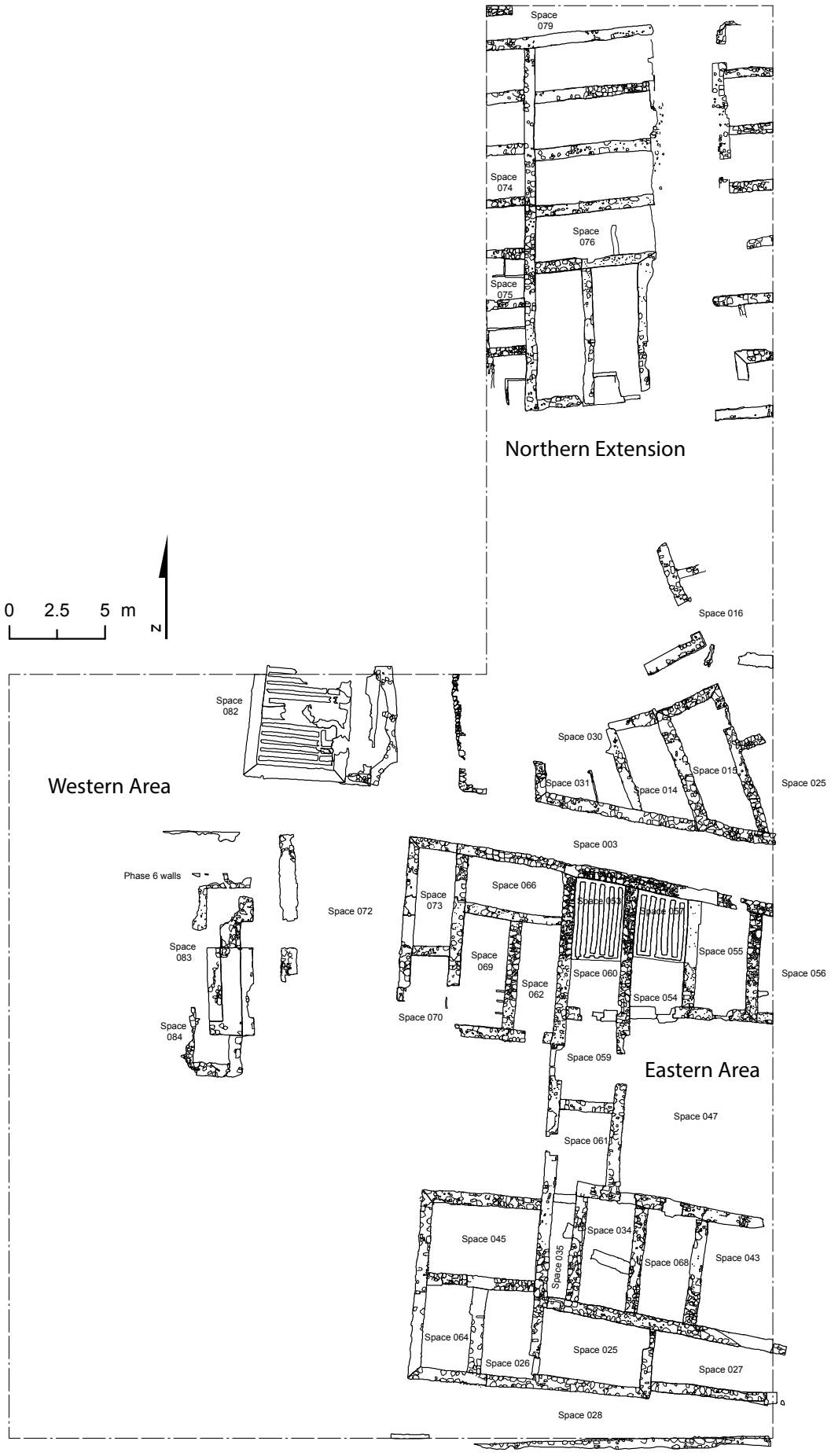


Figure 2.2: Phase 5 Architecture

Figure 2.3: Spaces 69, 70 and 73 in the Eastern Area. Looking NW. (KE-0291).

Figure 2.4: Space 69 plaster feature scars on eastern wall (KE-0187), with a detail overview at bottom left (KE-0188) and red staining on plaster surface at bottom right (KE-0301)

Figure 2.5: Pierced Incense Bowl, Oman (OE-2532)

process and not linked to the original function of the space. Access to the room was gained through the eastern wall into Space 69 and in the western wall to the street.

Space 73 was an unremarkable rectangular room with a beaten-earth floor and largely unplastered walls. The walls were likely covered with a less resilient mud render based on the collapse deposits filling the space. An entrance in the eastern wall allowed access to Space 66 and in the western wall to the street (Space 72). The room, like many in the compound, contained the articulated remains of an adult cat, likely suggesting a period of abandonment prior to collapse/demolition of the Phase 5 architecture.

This season also saw the start of the excavation of the many cut features located in the central courtyard of the Main Compound (Space 47). The features included several small pits, fire pits and stake holes located around the periphery of the space against the walls. The frequency of these features indicated the use of the courtyard as the central social hub of the compound.

Western Area

This area is divided from the Eastern Area by a north to south aligned street (Space 72), now cleared of all rubble onto its latest surface. Several large fragments of broken storage vessels were found scattered across this surface, as well as some finely decorated ware with painted Arabic script, a coin and a worked bone pin or stylus. The first of the structures west of the street was partially excavated this season.

The limited survival of this intriguing structure has lead to several working theories. The exposed extant structure appears to consist of at least two distinct spaces: a possible stairwell allowing access to a roof, and an adjacent long, narrow room (Figure 2.6), which appears to have been open at either end and was possibly a covered walkway (Space 83). The stairwell appears to have been accessed to the south from an external space or courtyard (Space 84) which extends

Figure 2.6: North-facing view of beachfront structure Spaces 83 and 84 (KE-0200)

Figure 2.7: South-facing view of the double date press Space 82 (KE-0170)

to the west; only a small section of the northern wall of the courtyard survives to the north due mainly to extensive later pitting and its proximity to the surface. No steps to the second floor survive but the stairwell is packed with stone which may have constituted a probable core for the stairs. Below this intriguing structure, visible at the base of a later pit, were the even more intriguing Phase 6 walls.

To the north of Space 83 and 84, separated by a thoroughfare that was likely an extension of the street (Space 3), were two date presses (Space 82). These were highly truncated by Phase 4 pitting (Figure 2.7). The front of the structure appears to have been open with a stone kerb and metalled walkway formed of angular, fist-sized or smaller stones, making a rugged surface; many of the stones showed evidence of burnng, and a majority were of a hard quartz or chert material unusual for the area, suggesting a specialised function. The *madbasa* structure appears to have been constructed over an earlier pit and has suffered from subsidence. Located within the SW corner of the plastered collection tank associated with the date press was a concentration of broken ceramics clearly representing a single vessel with red fabirc and slip decoration around the rim and body. It was likely this vessel was used to decant the date syrup (*dibs*).

Northern Extension

The removal of rubble and deposits from Phase 3 and 4 revealed a wide north to south aligned street separating two blocks of rooms mirroring the northern *souq* (QMA1) and divided from it by a narrow east to west alleyway (Space 79). Initial removal of some of the room fills allowed for a greater resolution of the architectural layout of the souq as well as a glimpse of the possible function of some of these spaces, with at least two showing the markers of a date press in the form of an off-centre plastered kerb wall dividing the date press from the catchment room. This indicates that at least some of the *souq* may have been used for the storage and processing of dates (Figure 2.8).

Figure 2.8: Northwest-facing view of the Northern Extension showing the emerging architecture of the *souq* and the previous excavation area QMA1 in the background (KE-0289).

2.1.4 Phase 4 - Intermediate Open Area with Temporary Structures

In all areas of ZUEP02, the bulk of the Phase 4 features appear to consist primarily of small cut features: waste pits, fire pits, *tannurs* and numerous post and stake holes, forming no discernable oattern, cutting into several surfaces and surface repairs. At least seven major sub-phases of surfacing could be observed, with a likelihood of more to be distinguished in further excavations. These appear to fit into the post-1811 abandonment and rebuilding phase after the town was attacked by the Sultan of Muscat and Oman and prior to the later, smaller Phase 3 town. One of these later occupation surfaces in the Northern Extension (Space 65, located against the eastern limit of excavation) was particularly rich in cultural waste material, with finds of note including a copper alloy thimble (Figure 2.9) and a stone pestle.

Many of the larger pits excavated this season appear to be primarily robbing pits and trenches above the Phase 5 walls; many of these had a secondary function as waste pits, particularly in the Northern Extension, where most of the pitting was located along the eastern limit of excavation. The fill of one of these large waste pits, as well as containing the usual mix of cultural waste (pottery, bone, shell, glass and metal), also contained ash, charcoal, slag waste and a particularly well-preserved copper alloy stamp seal (Figure 2.10) and a single coin.

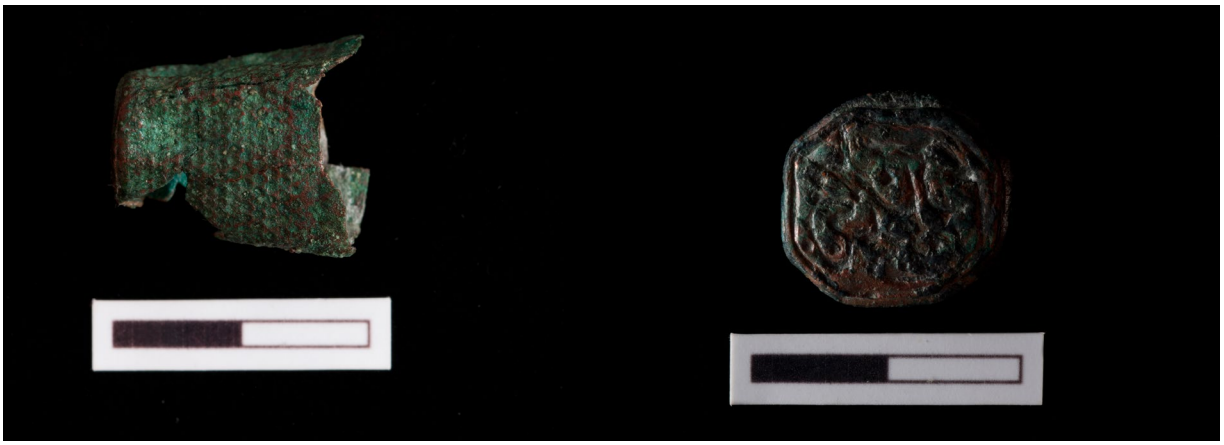


Figure 2.9: Copper alloy thimble (OE-2566)

Figure 2.10: Copper alloy stamp seal (OE-1575)

2.3.6 Phase 3 - Later Beach Stone Settlement

Most of this later material has been removed during previous seasons, leaving only a small number of cut features to be excavated this season in the Northern Extension. These included three fire pits, three pits of no specific function and a single post hole. They have been tentatively attributed to this phase but may well have been cut from higher in the stratigraphic sequence.

2.3.7 Conclusion and Recommendations

Following seasons should see the continuation of the open area excavation of this warehouse and market space in order to present a full beachfront compound as part of the visitor experience to Al Zubarah.

In the Main Compound, this entails the continuation of the excavation of the central courtyard (Space 47), its cut features and later surfaces. Further work is also needed on newly exposed Phase 5 structures in the Western Area, the date press (Space 82) and the beachfront property consisting of Spaces 83 and 84.

In the Northern Extension, the removal of the collapse and demolition fills from within the Phase 5 rooms and streets will continue. This will give us a better understanding of the activities within the *souq* and possibly provide some *in situ* floor deposits. Further investigations of how the *souq* structure here related to the two southern storage compounds in the Eastern Area are

also planned.

ZUEP01 has provided us with an extensive and densely packed occupation in Phase 6, comprised of a myriad of cut features including pits, *tannurs* and postholes, all reflecting temporary, possibly seasonal occupation not dissimilar to that seen within Phase 4 in ZUEP02. With the possible Phase 6 walls seen at the base of the robber pit over Spaces 83 and 84, further study of this area will provide a unique insight into the earliest phase of occupation on the beach. This can be undertaken in conjunction with the planned and necessary conservation work of the Phase 5 architecture on site, allowing for small-scale sondages into deeper deposits otherwise sealed by the preserved structures of the major occupation phase.

2.2 Al Zubarah Excavation Point 4 (ZUEP04)

Tom Collie

2.2.1 Introduction

Excavation Point 4 (hereafter ZUEP04) is located at the southern end of Al Zubarah (Figure 1.1) and focuses on a large fortified compound enclosing rooms and courtyards supported by parameter walls with corner towers. This compound was divided into eight separate Precinct Sections (PS) surrounding a centralised courtyard, which was circumnavigated by streets and passageways (Figure 2.11).

Excavation work during the spring of 2013 centred on two main objectives:

Objective 1 was to finish work started in season 2011/12 on the central courtyard in Precinct Section 8 (PS8). It aimed to recover very early archaeological dating evidence to determine the earliest possible occupation date of the compound itself, and ideally tie it into the earliest phases of Al Zubarah's construction and subsequent occupation.

Objective 2 was to begin the excavation of Precinct Section 7 (PS7, Figure 2.12). Work in season 2011/12 had already discovered new rooms from this separate precinct section, and excavation here aimed to compare and contrast the archaeology to that found in PS8. Hopefully this would

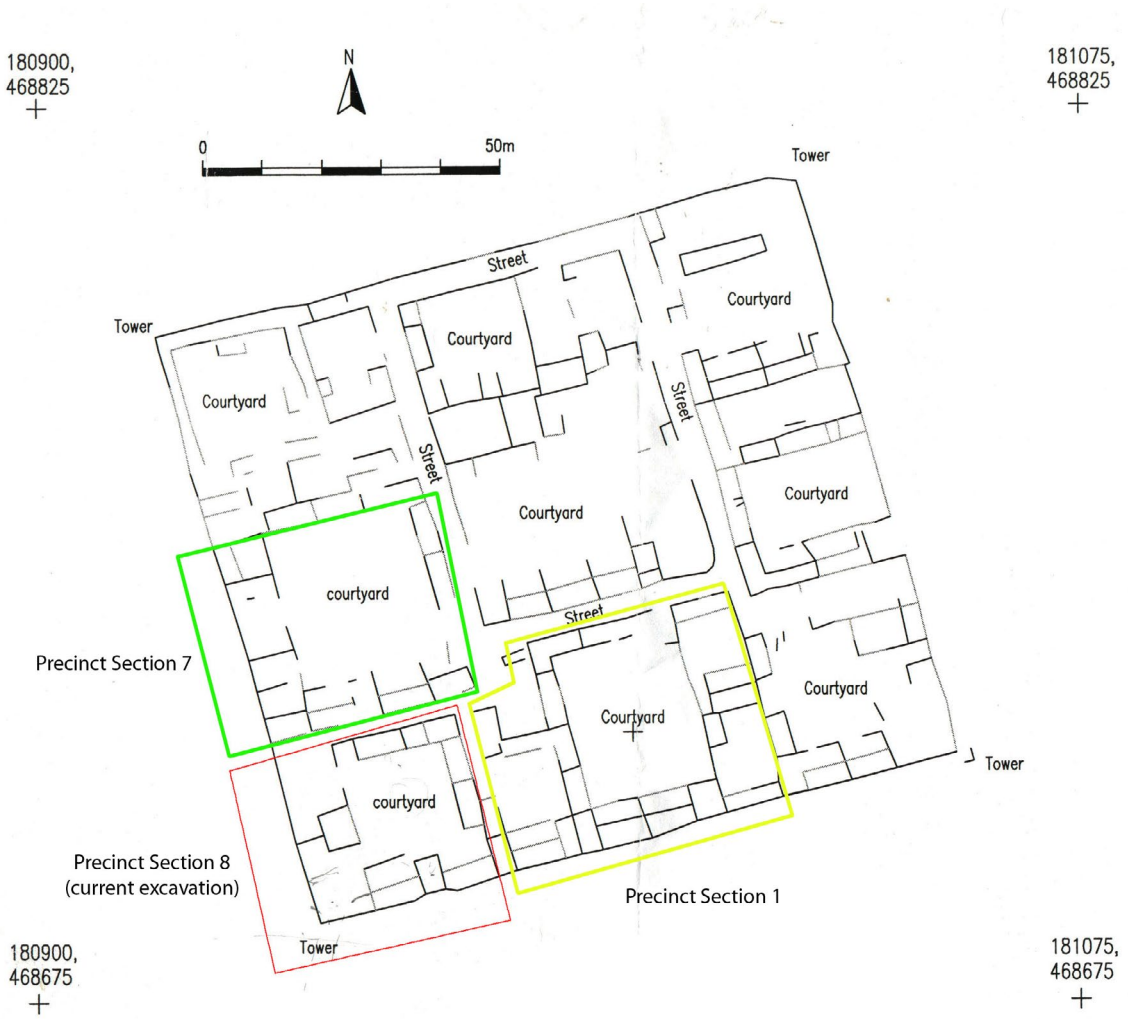


Figure 2.11: ZUEP04 - Plan showing precincts

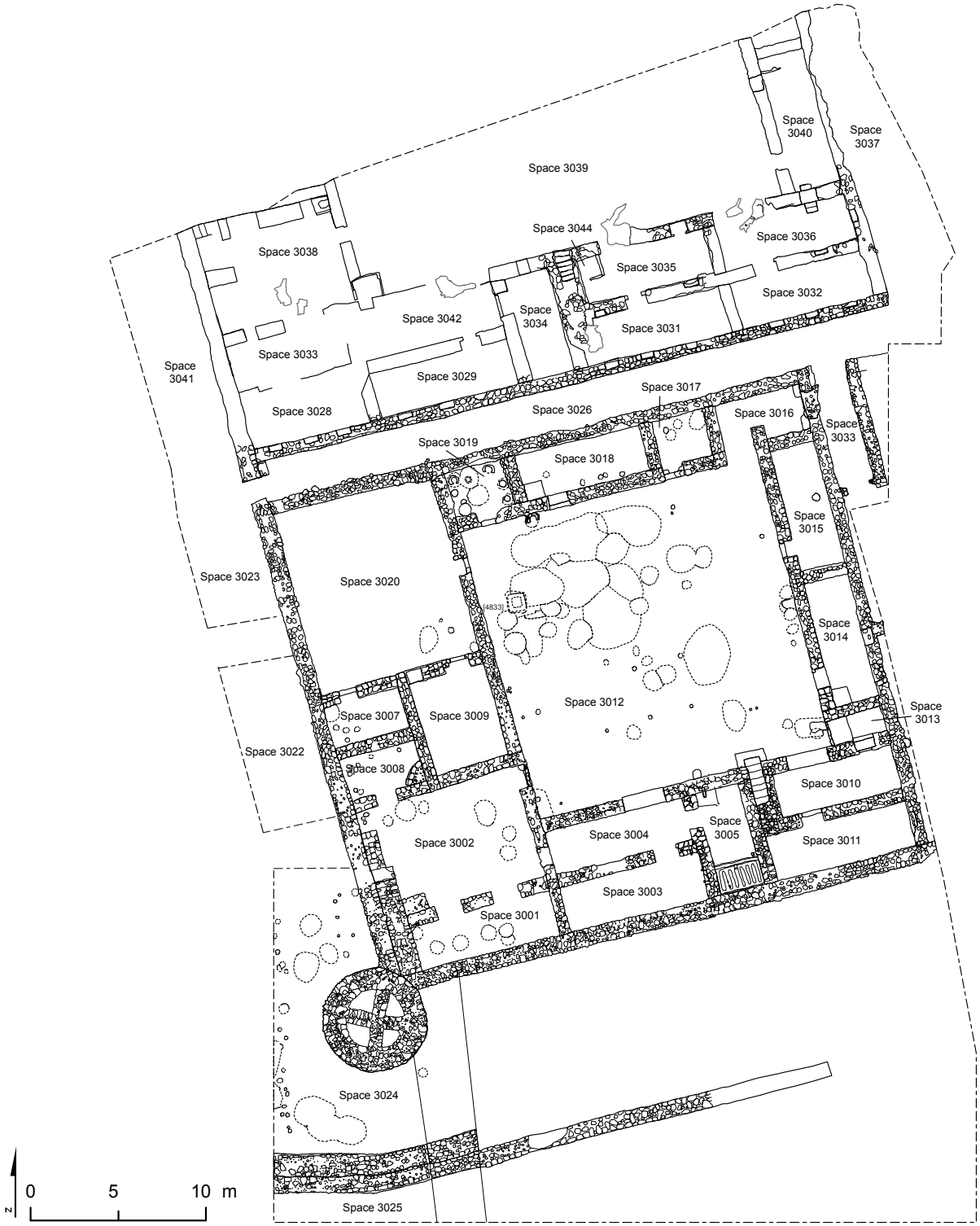


Figure 2.12: ZUEP04 Detailed post-excavation plan

reveal more about the people occupying this structure and indeed about the compound as a whole.

2.2.2 Objective 1

The stratigraphic sequence for the central courtyard Space 3012 was revealed in season 2011/12, and work in spring 2013 finalised the investigations therein. Deposits within the courtyard were organised into five main sequences, each one representing a main courtyard surface mixed with patchy occupation deposits which had been truncated by features such as post holes, soak-aways, simple pits and plastered drains. These sequences overlaid a main construction horizon (4731) which extended into the smaller courtyard spaces 3002 and 3020. The presence of these sequences strengthened the suggestion that the compound was in constant use and underwent processes of modernization and improvement.

The excavation of the courtyard surfaces was dominated by the presence of massive pits, some measuring 3m in length and 1m in depth (Figures 2.13 and 2.14). The existence of these huge truncations was initially inexplicable, and the first avenue of exploration concerned the purpose of their construction. It seemed reasonable to think that such large pits would have contained some form of domestic and organic waste. However, this was not the case: finds were rare

Figure 2.13: Colossal pit [4910], looking east, in courtyard Space 3012. (ME-0367)

Figure 2.14: Post excavation shot of 10 x 10m sondage cut through construction horizon (4731) in courtyard space 3012 showing truncations, aerial view. South at top. (IE-0140)

indeed. The pits had been dug and then merely backfilled with discoloured shell and sand. They were possibly originally cut to extract clean shell and sand from the underlying natural deposits. This material would have then been used to produce and renew clean shell surface layers for rooms within the compound. It may have also been used to construct the composite beach stone used to build architectural features within PS8 itself.

A second puzzling aspect is the location of these pits directly in the middle of the building and indeed the courtyard, a space where – presumably – domestic tidiness and order was required not only for an aesthetic quality but also for the practical purpose of moving around. Why were they not placed outside the compound, thus causing less general disturbance? This question cannot be answered with any conclusive confidence. One suggestion was that pit location was dictated by convenience: fresh shell would have been easier to distribute in a far quicker manner if it was mined from the inside. Less labour and time would have been used if clean sand and shell would not need to be transported from the compound exterior. Similarly, the disposal of unwanted and soiled room surfaces would have been easier if they were discarded in a place very close to their point of origin.

Other pits found in the courtyard sequences proved more interesting and less ambiguous. Circular pit [4833] contained the base remnants of a large jar believed to have contained water (Figure 2.15). The upper main body of the pit contained large amounts of large smashed fragments of this jar, but also weathered plaster fragments and large beach stone pieces. The jar had been smashed and then backfilled with unwanted stone and plaster material. It is intriguing for many reasons. In the first instance, it showed that stone and other degraded architecture had been thrown into an unwanted storage jar pit, presumably to fill it with hard and sufficiently stable material to provide a surface in line with the rest of the courtyard. It is notable that little material culture remains and domestic waste were found inside. Secondly, the

Figure 2.15: *In situ* water jar <4830> residing in pit [4833] in Space 3012 immediately southwest of water basin <4391>, looking east. (ME-0144)

Figure 2.16: Half sectioned pit [4850] containing water basin <4391> in Space 3012, looking southwest. (ME-0178)

pit bears resemblance to other circular truncations that were similarly filled with grey sand and shell, suggesting that circular pits found elsewhere in the courtyard may have also housed such water jars. These truncated the courtyard below ground level to keep the liquid cool and also to provide a stable position and location – the jars seemed too large to stand upright on their own. Thirdly, this circular cut was directly to the southwest of water basin <4391> found initially in season 2010. This would suggest that both the water jar and the water basin could have been used contemporaneously, the jar for water and the basin as a washing space with associated drainage (Figure 2.16).

2.2.3 Objective 2

Excavation in PS7 aimed to examine whether the layout of the building seen in PS8 was repeated elsewhere. Hitherto it was believed that the architectural plan of PS8 represented a model for the rest of the compound sub-divisions. The excavation of PS7 aimed to compare the two in order to highlight any possible different roles the two precinct sections played within the compound. Any differences might offer an insight into the different family units that resided within. Moreover, the examination of PS7 may also help to explain features found in PS8 that were not readily understood in previous seasons.

A total of 13 new spaces were revealed, and work achieved in the spring of 2013 produced a great deal of information on the precinct's general construction. Structurally, PS7 resembled PS8 in many ways. It was built with similar stone; its internal walls were rendered with a similar plaster and its rooms were entered via doorways formed by arches; its rooms surrounded a central courtyard; it had signs of a small stair leading up to the western exterior compound wall; its rooms had similar plastered wall niches; and there was a massive architectural indicator highlighting an upper level at the southern architectural wing. However, PS7 was not modelled exactly on the layout of PS8. It did not have a date press within the central southern room directly to the west of the main staircase. It had four rooms to the east of the staircase within its southern architectural wing. It had no signs of a specifically allocated washroom in its south-eastern corner. It was thus marginally different to PS8, which indicates that, although the layout of all the Precinct Sections may have had large-scale similarities, they may have deviated slightly from each other in individual ways. This points to the idea that they may have played different roles within the compound as a whole and, moreover, housed individuals who held different positions in the social strata of the compound community itself.

PS7 also revealed important tangible signs of occupation. Pottery spreads were located in the south-western corner of courtyard Space 3039. These bore a striking similarity to the spreads found outside Spaces 3017 and 3016 in PS8, and were interpreted as smashed water storage jars. A large grinding stone (Figure 2.17), located directly outside Space 3044, indicates activities related to food production. This stone had in fact been left in situ attached to its central vertical metal rod that presumably constrained it to its position in the corner of the courtyard.

By far the best examples of occupation were the drawings of boats and ships etched into the vertical plaster wall faces found in two of the rooms. Space 3033 displayed signs of four pictures, and a further five were situated in the south-western walls of Space 3036 (Figures 2.18 - 2.20). These graffiti depicted crude images of boats and sailors, and were reminiscent of the larger dhow etching carved into the building wall at ZUEP01 (Sorensen 2009). The etchings had been covered by the rubble collapse of the walls, and therefore must have been made before the general decline of the building. It seemed unusual that such a high-status building would have had such rudimentary images inscribed onto the walls. It was suggested that these were perhaps drawn as Al Zubarah began to fall into decline, maybe when the building was abandoned or when the town itself shrank behind the Inner Town Wall. However, there is no evidence to support this idea as yet, and the etchings very well could have been created during

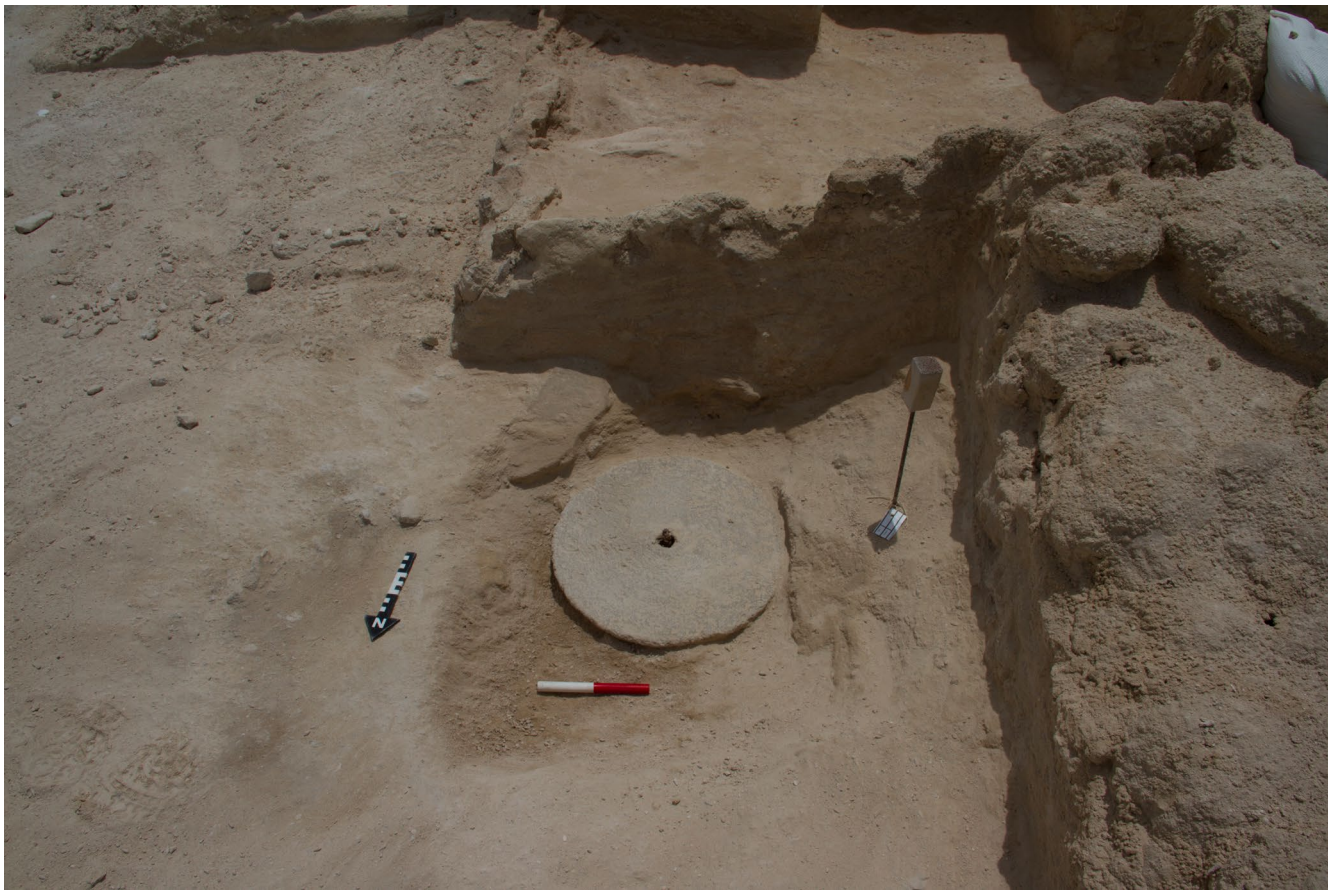


Figure 2.17: Grindstone <4983> directly north of Space 3044, located in the far south-western corner of courtyard Space 3039; looking south. (ME-0809)

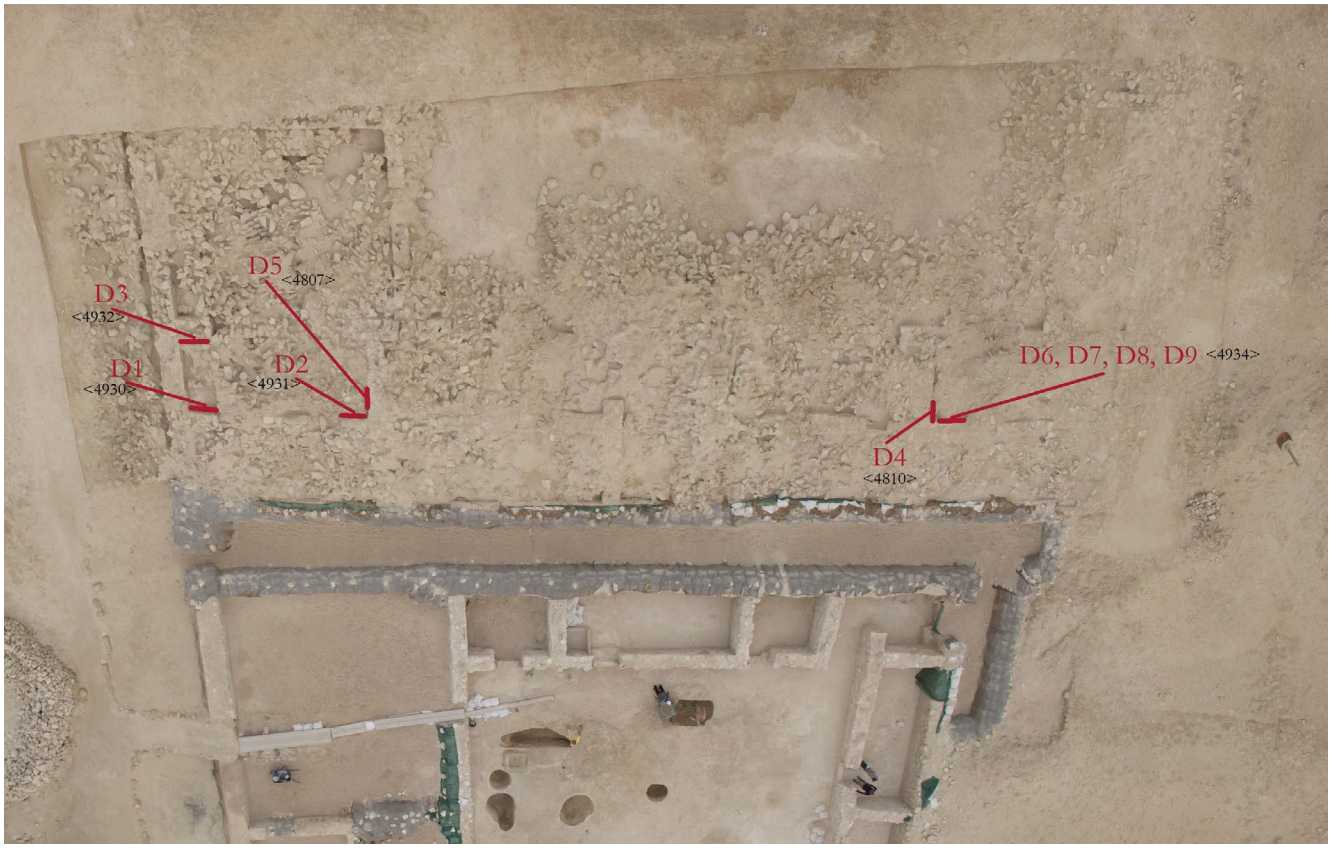


Figure 2.18: Aerial picture of location of grafitti etchings on walls of Precinct Section 7 with dilapidation and demolition deposits from Phase 4. North at top. (IE-0013)

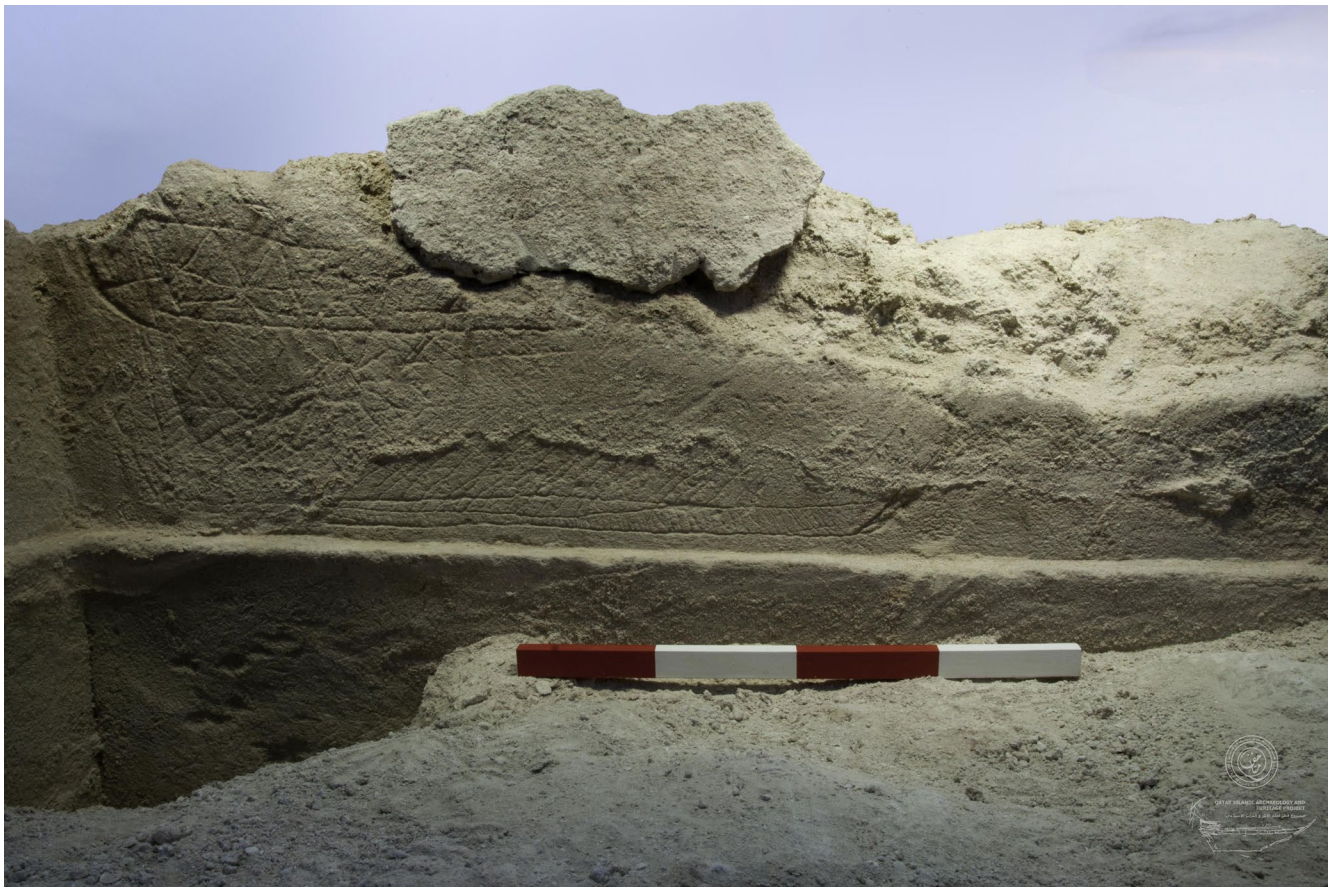


Figure 2.19: Shot of graffiti drawing D4 located in Space 3036. (KE-0036)

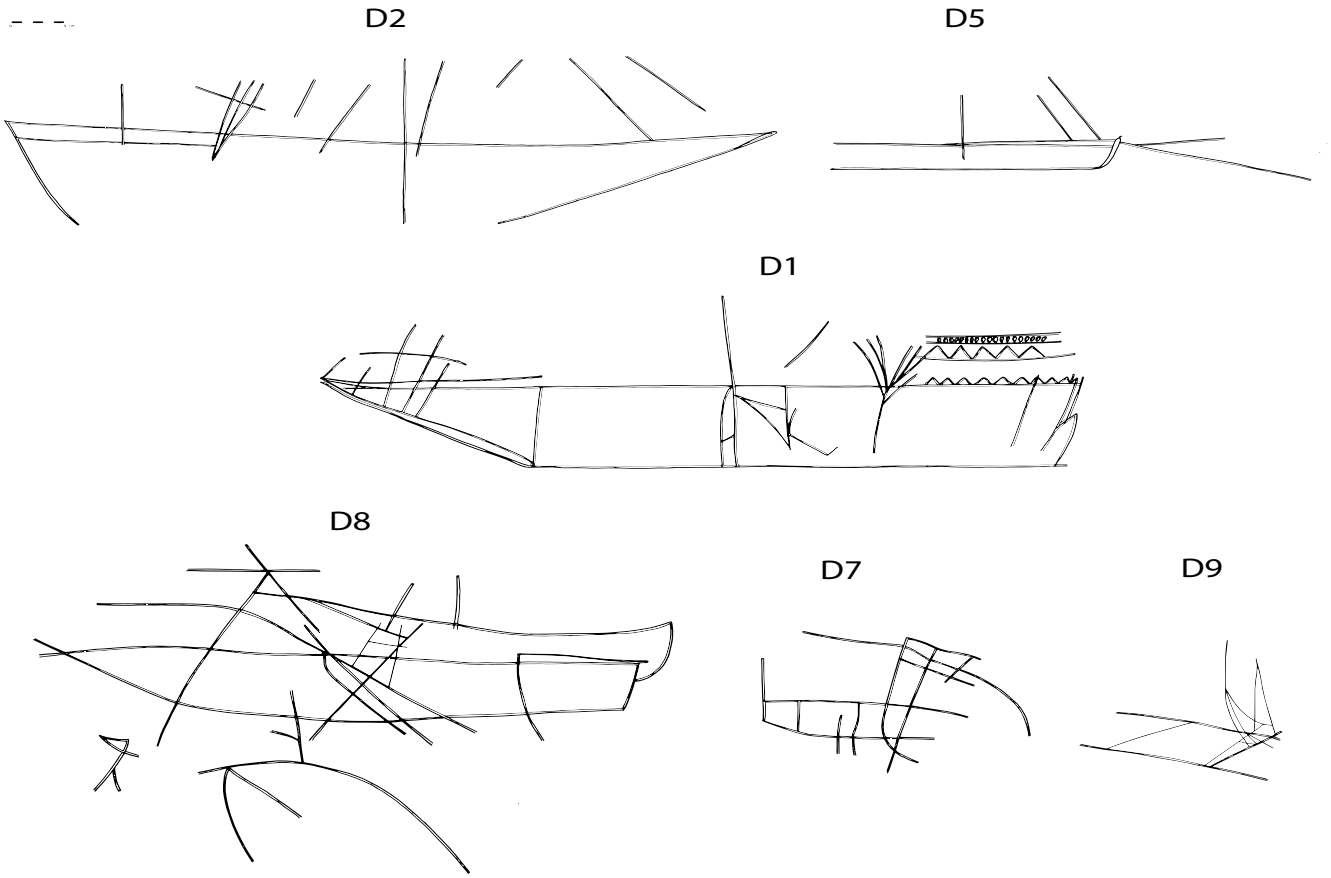


Figure 2.20: Graffiti drawings D1-9 (Illustrations by Caroline Hebron)

the building's main occupation. The images do show a strong connection of the artists to the coast and a seafaring existence, and this would have been true for Al Zubarah during all of its history.

2.2.4 Conclusion and scope for further work

Once again the excavations at ZUEP04 have revealed some remarkable archaeological remains, adding a further 13 spaces to the 27 examined in the seasons before. Investigation of the building rubble alone yielded a large number of material finds. Delicate and intricate plaster window/ventilation lattices and plaster-rendered arches, collapsed into single or only very few pieces, clearly illustrate that the architecture in PS7 belonged to an elite social class. Most importantly, the removal of the rubble revealed more graffiti etchings. While there was no conclusive evidence to show that they had been inscribed either by the high-status occupants of the compound during Al Zubarah's late 18th century prime or indeed by inhabitants after the compound had been largely abandoned, they directly link this building to the sea and point to its importance in the town's brief history.

2.3 Point 13 (ZUEP13)

Daniel Wheeler

2.3.1 Introduction

Excavation Point 13 (ZUEP13) was opened at the beginning of the 2013 season around the Outer Town Wall (OTW) in the south-east of Zubarah. Running parallel with the wall, approximately northeast to southwest, the area was 10m long and 12.6m wide and focussed on the section of wall surrounding Tower 18 (Figure 2.21).

The principal aims for ZUEP13 were to:

- Expose the full extent of the earliest phase of the Al Zubarah OTW and Tower 18 to allow for continued preservation;
- Gain an idea of the function of the area around Tower 18 and its relationship with the large open space in the south-east of Al Zubarah;
- Ascertain whether the arrangement of stairs reconstructed within Tower 18 during the 1980s was an accurate restoration of the original architecture;
- Gather finds and dating evidence from the sequence of midden deposits banked against the outside of the OTW;
- Provide a full cross-section showing the collapse sequence on both sides of the OTW.

Figure 2.21: Post-excavation aerial view of ZUEP13 with Tower 18. (IE-0017)

2.3.2 City Wall and Tower 18

ZUEP13 revealed a relatively simple sequence of archaeological deposits representing continued activity in this area throughout the main phases of Al Zubarah's expansion and occupation in the mid to late 18th century.

A small amount of dumped material sitting atop a layer of trampled natural sand represented the earliest activity in the area, but this was quickly followed by a horizon of remnant construction material, such as mortar and rubble, associated with the building of the OTW and Tower 18.

The wall and tower were assumed to be contemporary and were both associated with the large architectural expansion across all of Al Zubarah during Phase 5. Both the tower and wall were subjected to reconstruction shortly after their excavation in the 1980s, but the majority of this conservation has fallen victim to the harsh extremes of the Qatari climate. Within the tower itself, and better protected from the outside sun and winds, the reconstructed staircase had survived intact. Like Tower 8 in ZUEP10 (Wheeler 2012), the staircase within Tower 18 had been reconstructed as a spiral, ascending clockwise from the entrance on the inside of the wall. With little or no documentary evidence from the earlier excavations available, it is uncertain whether such an arrangement of stairs was based on the original architecture or had been constructed anew to allow easier access. The removal of a wind-blown deposit and a deliberate infill (see below) from within the tower revealed an additional three stairs and risers leading down to the original ground surface (Fig 2.22). This confirmed that the earlier reconstruction was very likely a realistic interpretation of the original staircase.

2.3.3 Banquette walkway and associated surfaces

After the construction of the wall and tower, a series of surfaces or pathways, each sloping downwards from the staircase entrance, were laid in the area in front of Tower 18. These

Figure 2.22: Reconstructed and original staircase within Tower 18. (HE-0153)

Figure 2.23: *Banquette* walkway added along inside of city wall. (HE-0130)

each gradually tapered off as they headed either northwards towards Tower 17 or southwards towards the palatial compound at ZUEP04. Each surface was overlain with a mixed trampled deposit comprised of material gradually accumulated over the surface before eventually another surface was laid. Mid-way through this sequence saw the installation of a *banquette* walkway constructed against the inside of the city wall (Fig 2.23). This addition would have turned the higher part of the wall into a defendable parapet which could be patrolled along and fired from, and was likely added in response to increased attacks against Al Zubarah around the turn of the 19th century. Having been seen previously within ZUEP04 and ZUEP10 (Wheeler 2012), this was an expected discovery and further confirmed that the *banquette* was a city-wide refortification along the entire length of the wall. Unlike in ZUEP04 and ZUEP10, however, the walkway here was constructed in several phases. The first – the main stretch of the *banquette* and generally poorly constructed in relation to the main OTW – saw the walkway gradually slope downwards towards ground level as it approached the entrance-way to the the tower staircase. Later in the sequence these gradiations are squared-off with much more substantial additions, leaving a narrower access from the tower to ground level (Fig 2.24). Lastly, a complete blocking is added into the *banquette* and infill placed into the lower steps of the tower (see above), barring access from the ground completely. It is probable that the addition of these blockings is a response to this area being a weak point in the OTW during a time of increased threat to Al Zubarah that culminated with the sacking of the city by forces from Muscat in 1811 and the town's subsequent contraction behind the smaller, inner wall.

The addition of the *banquette* walkway likely saw an increase in activity within the surrounding area of Tower 18. This is supported by the addition of a substantial, mortar-rich laid surface which probably resulted from the spread of left-over material from a re-rendering of the walkway. Into

Figure 2.24: Blocking installed to restrict access to Tower 18. (HE-0137)

this deposit were cut a number of features including post holes, stake holes, a large rectangular fire pit, and some small depressions that may have been tool marks resulting from the laying of the surface. Several alternating layers of accumulation and re-laid surfaces sealed these features before a small pit was cut into the northwestern edge of the area. Reaching into the natural bedrock in the lowest-lying part of ZUEP13, this feature contained fills comprised of hundreds of lenses of accumulated washed sand, indicating that this pit was left open as a soak-away to drain excess rainwater running downhill from the tower and wall (Fig 2.25). It seems likely from the way much of the archaeology in this area slopes down towards this soak-away that it may have been one of the earliest features in ZUEP13 and had been recut several times throughout the continued use of the surrounding area.

2.3.4 Midden

The south corner of ZUEP13 on the outside of the OTW was characterised by a thick layer of midden deposits up to 0.5m in depth (Fig 2.26). It is likely that these were a mixture of material that had been thrown from the city wall and tower, combined with similar deposits that had blown from a deflated mound to the northeast. The midden was a typical build-up of multiple layers representing dumped everyday detritus and was extremely rich in finds in relation to the

Figure 2.25: Soak-away. (HE-0066)

sterile deposits on the inside of the city wall. It was characterised by relatively uncomplicated stratigraphy but contained multiple layers of thin deposits. In most instances a number of these deposits were grouped as a single locus in an attempt to strike a balance between gathering an appropriately accurate amount of information given the time-frame and practicality. The objective was to gather as much for later analysis as possible. Thus, each locus was sieved in its entirety through a 4mm mesh and a large unsieved sample was taken for flotation.

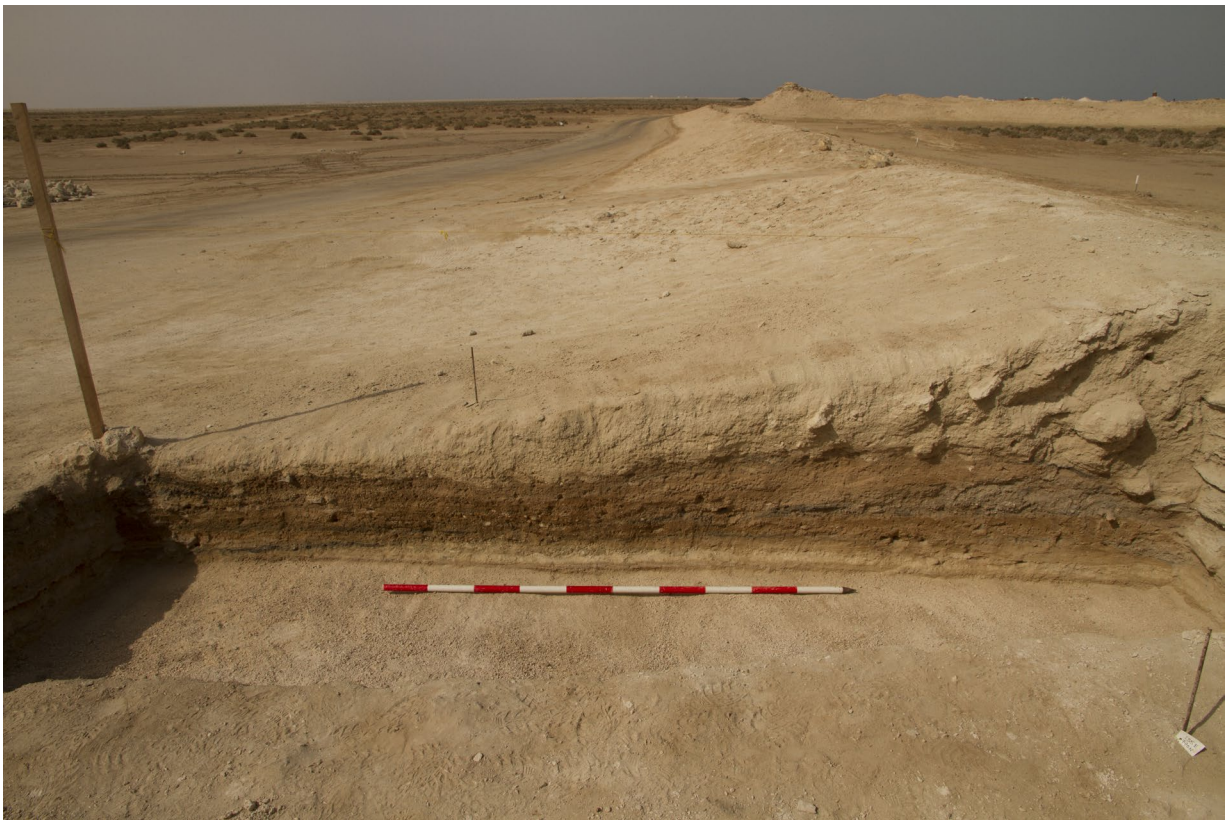


Figure 2.26: Midden deposits against the city wall. (HE-0105)

2.3.5 Abandonment

Overlying the majority of ZUEP13 was a thick layer of wall collapse sloping down in a uniform fashion on either side of the OTW. This represented the slow degradation of the outer city limits after the contraction of Al Zubarah to within the Inner City Wall after the attack of 1811. It is likely that the the towers and OTW were still used for observation and patrolled into Al Zubarah's later occupation, but evidence for this would be unlikely to survive in the archaeological record. Eventually, the entire area became buried under a thick layer of wind-blown sand and modern accumulation.

3. FIELDWORK IN FREIHA

Gareth Rees

3.1 FREP04

3.1.1 Introduction

The final season of excavations at Excavation Point 4 (FREP04) took place during the spring of 2013. Investigation was focused on an area measuring 20m by 10m in the south-west corner of the excavation. The aims of this season were to define and characterise what appeared to be a pisé structure, identified in 2012, as well as to establish the complete sequence of archaeology down to natural deposits.

Occupation and activity from Phases 5 and 6 were uncovered. The south-west corner of a large courtyard building, constructed with foundation cuts, was uncovered in Phase 6. This was associated with domestic activity in the courtyard and externally to the south and west (Figure 3.1).

Phase 5 activity consisted of a large number of post holes, possibly representing *barasti*-style temporary structures, similar to Phase 5 occupation in other parts of FREP04. The walls of the Phase 6 building were also completely removed at this time.

Previous End of Season reports (Rees 2010, 2011, 2012) discuss the wider excavation and phasing of FREP04.

3.1.2 Phase 6: The Courtyard Building

The Construction Area

The first activity uncovered in this area was associated with the initial construction of the building. A large spread of ash and charcoal was overlain by a thick layer of burnt anhydrite rock located adjacent to the southern foundation trench of the building. The heating of anhydrite to make mortar for construction was common in all phases of activity in this area (Rees 2012). Located directly to the east of the anhydrite heating zone was an area of compacted anhydrite mortar, previously thought to have been a surface (Figure 3.2). Given its proximity to the burnt area, it is likely that this deposit was formed due to lime-slaking, where water is added to heated rock to form a fine mortar that can be used in construction. Several other fire pits and small pits with mortar residue also appear to be associated with this initial construction phase. The mortar may have been used as a bond in the walls as well as a lime-wash or plaster, none of which survived *in situ*.

The Structure

Mudbrick or pisé rubble appearing to represent the remains of a structure was identified below the Phase 3 activity in spring 2012. The outline of this structure was tentatively identified on the end-of-season aerial photograph (Rees 2012). Excavations during the most recent season have shown that this traditional Arab courtyard house was the first building to stand on the site. Structural evidence survived in the form of a one-metre-wide foundation trench, cut in to natural sands, which was filled with a clayey deposit to form a solid footing for the walls above (Figure 3.3). No structural masonry of this building has been preserved as the walls have been robbed out. A 'robber cut' in the subsequent phase of occupation strongly suggests that

Figure 3.1: FREP04 post-excavation aerial view. North to left. (IE-0275)

Figure 3.2: Construction area: Burnt (left) and compacted anhydrite (right). Facing north- north-west. (CE-0202)

Figure 3.3: Foundation trench with fill. Facing north-north-west. Scales to the north of the cellular room (left) and adjacent to courtyard wall foundation (right). (CE-0152)

the lower courses of these walls would have been made of stone, whilst a clayey-silt built-up, interpreted as mud-rubble, around the foundation trenches is indicative of a mudbrick or pisé wall above. This mud-rubble tended to have a vertical edge on the side facing into the structure, spreading out into a thin wedge – a formation that is likely to have occurred when mudbrick collapsed from the walls and built up against the masonry below. The internal wall edge could be seen in the cellular room where the surface would have abutted it.

Two rooms were uncovered: a small cellular room in the south-west corner, and a second, probably rectangular room adjacent to it to the north-west. A compacted earthen surface with three small fire pits cut into it was discovered in the cellular room. Layers of fine sandy-clay rubble above the surface may indicate that these structures had flat roofs covered in earth. There was no indication of doorways in to these rooms; however, the rectangular room was aligned longitudinally north-north-west, which may imply that it originally had an entrance from the south (Ragette 2006: 48). This entrance may have been moved to the east later when the cellular room was added; a similar architectural morphology was identified in the Phase 2 structures.

A third room was added to the west of the compound during the second period of use of these structures. Only a small fragment of beach-stone footing remained of the walls, but it appeared to have had an entrance from the south-east and re-used the back wall of the rectangular building as its north-eastern boundary (Figure 3.4).

There were several indicators that the courtyard building was in use for a relativity long period of time. The addition of the western room, built over deposits abutting the original wall, suggests an intention to expand the existing building. Multiple re-surfacing events around the outside of the building to the south and west, and inter-leaved layers of mudbrick erosional deposits and surfaces in the courtyard indicate that buildings and spaces were being repaired rather than abandoned (Figure 3.5).

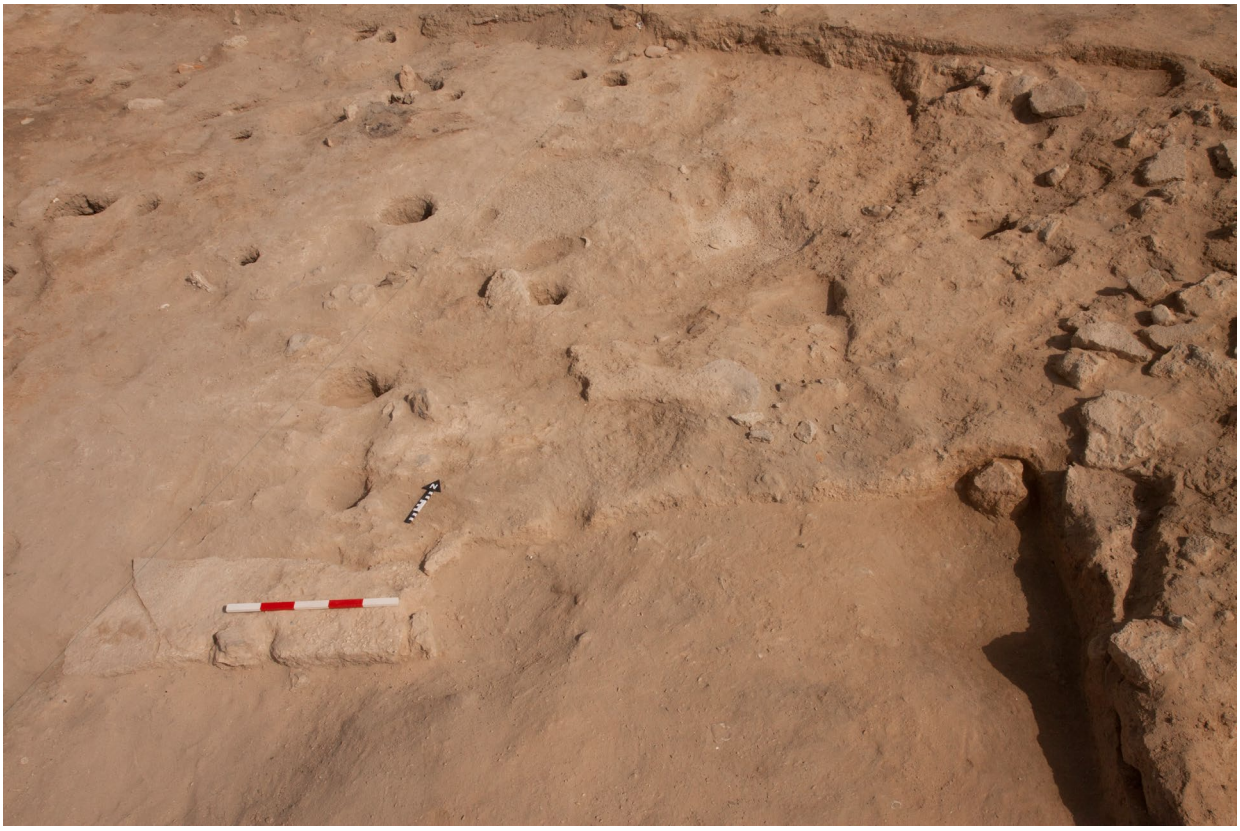


Figure 3.4: Cellular room added to the north-west. Facing north-north west. (CE-0081)

Figure 3.5: Interleaved layers of rubble and mudbrick collapse over western wall. Facing south. (CE-0124)

The Courtyard

Located to the east of the buildings, the courtyard was bounded by a wall built in the same manner as those of the buildings. There was significantly less mudbrick collapse around these walls, indicating that they were either not as high or not repaired as often. The courtyard contained four *tannurs* and six fire pits. There were also many post holes, which may have been part of installations and temporary shelters in the courtyard. It is unlikely that all of these features were contemporary. Patches of shell and earth surfaces interleaved with lenses of erosional material derived from the mudbrick walls indicate a protracted period of activity.

Two of the *tannurs* in particular were of note because they preserved components that did not survive in similar features. These *tannurs* had beach-stone slabs placed on end at the north-western side of the cut; the clay linings were then built up to this level, creating a platform with a funnel facing the prevailing wind (Figure 3.6). These stone funnels may have been used to control air flow and temperature as well as to add more fuel.

External Activity

There were two periods of activity to the south and west of the building. This activity was primarily evidenced by compacted sand and shell surfaces. The first surface covered the area where construction activities had taken place. This surface contained two *tannurs*, seven fire pits and a large deep pit that may have contained a water storage vessel. The fire pits, all of roughly similar dimensions, were located in an area to the south of the building. One of these contained an *in situ* re-used ceramic vessel which may have been moved from pit to pit, creating a temporary oven lining for each use (Figure 3.7). Sand and midden material built up over this primary surface before the second surface was laid. This was associated with a large number of post holes, particularly to the west, which may have been part of a temporary structure in this area.

Figure 3.6: Tannur in courtyard with beachstone opening. Facing south-east. (CE-0048)

Figure 3.7: Fire pits showing final location of temporary ceramic lining. Facing north. (CE-0034)

Located to the south of the courtyard wall, a rectangular installation constructed from mudbrick and dolomite may have been a bench or similar feature external to the main activity area.

Abandonment

After the buildings went out of use, rubble from the walls collapsed into the rooms and mudbrick from the walls eroded in to thick, compacted wedges of material, particularly in the external areas which were exposed to the elements.

3.1.3 Phase 5: *Barasti*-style temporary structures

As in other parts of FREP04, this phase was characterised by occupation sands with groups of post holes, fire pits and *tannurs*, suggesting that the area had become peripheral to any large-scale activity. During this phase the stone walls of the building were removed.

Removal of these walls was evidenced by a 'robber cut', the edge of which could be seen due to rubble material that had built up against the outside of the walls before removal. Therefore the lines of the walls were preserved primarily by build-up of material eroded from the mudbrick of the upper courses. The robber trench was backfilled with stone and mudbrick rubble as well as midden material.

Activity to the west of FREP04 at this time consisted of several fire pits and a short length of compacted material that may have been the footing for a wall. Nine post holes were cut into the mud-rubble which had fallen to the west of the collapsing building. Two fire pits were located in the rubble of the cellular room.

Domestic activity, in the form of fire pits, *tannurs* and rubbish dumping was still common. One fire pit in particular was significant as it appeared to have had a stone super-structure built over it, indicating a significant investment of time and resources in this feature.

3.1.4 Discussion

The final season of excavations at Freiha in FREP04 has uncovered the primary archaeological horizon in the area located to the north-west of Qalʿat Freiha. The entire sequence of activity in this area consisted of domestic occupation evidenced by courtyard houses with storage areas, *tannurs* and large amounts of domestic waste such as fish bones and broken cooking vessels.

The site of FREP04 was selected for excavation for several reasons:

- its location in the Central Settlement Zone (Figure 3.8), which was thought to be the first and last area of the settlement to be occupied;
- a building type characteristic for the settlement as recorded during the survey of Freiha;
- superior preservation, with masonry standing up to 0.5m;
- hopes that a dense sequence of occupation down to the earliest phases would be present due to its location.

The earliest phase of activity was thought to be represented by architecture uncovered in FREP03, in the Eastern Settlement Zone, which was characterised by foundation trenches with compacted earthen footings for low cobble walls (Rees 2011). One of the primary aims of FREP04 was to investigate whether this type of architecture pre-dates the well-preserved stone buildings in order to test the theory that the settlement had spread from a central core around

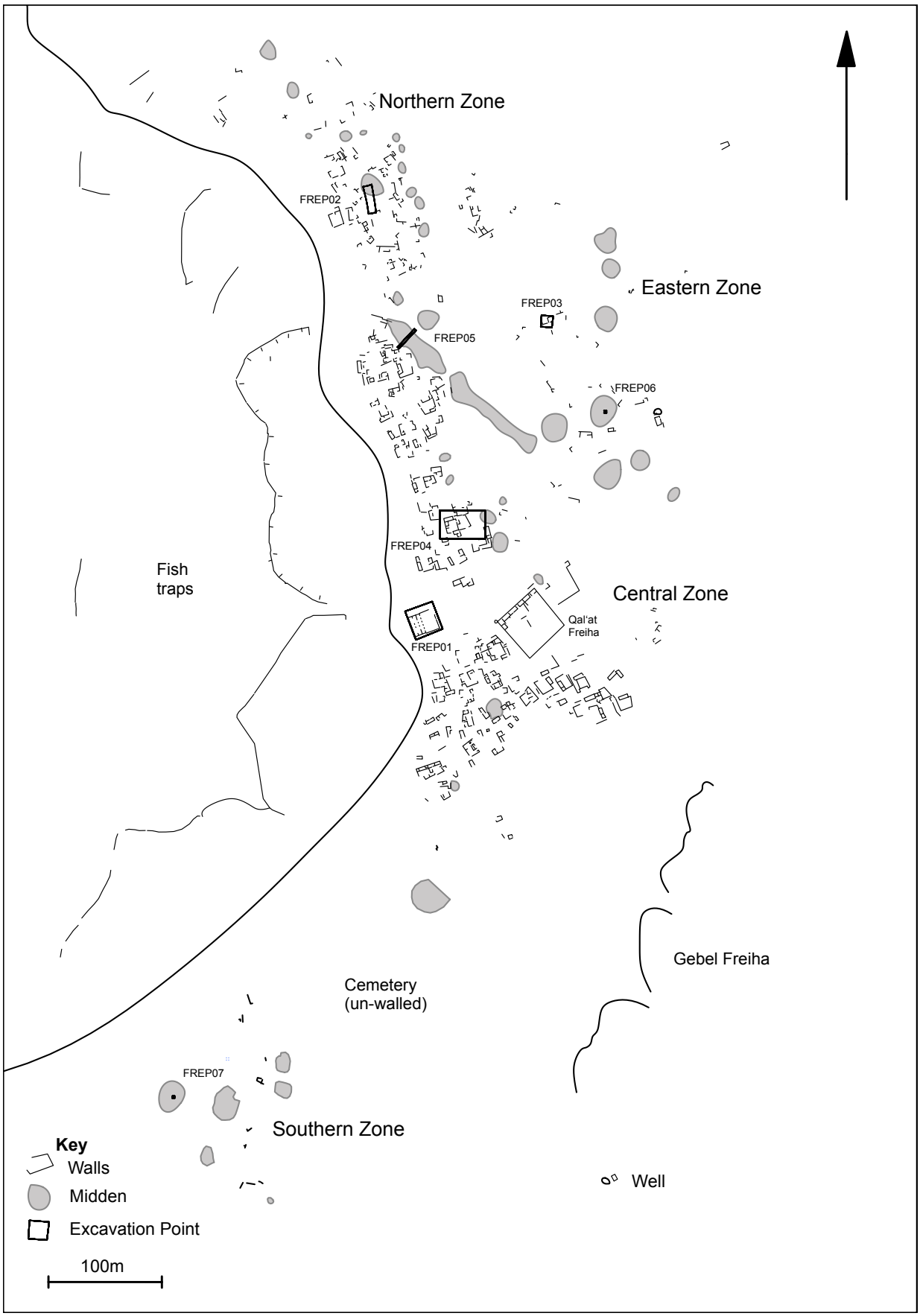


Figure 3.8: Overview map of settlement zones in Freiha.

the mosque and fort.

The most recent season of excavations has demonstrated that the Central Settlement Zone does contain this dense sequence of occupation which probably spanned the life of the settlement as a whole. Although the bulk of the ceramic assemblage has yet to be analysed, provisional dating of the upper horizons in FREP04 indicates a date no later than the late 18th century.

The longevity of occupation in FREP04 must be seen as one of the key research aims during post-excavation work, as an exact date for the foundation of the settlement has not been established from historical sources. Of the six major phases of activity identified in FREP04, Phases 6, 4, 2 and 1 all contained buildings which had been re-used, re-worked and extended during their use. This shows that they were not single-use structures, and gives some indication of the length of occupation. Analysis of C14 samples taken during excavation will allow the establishment of an absolute chronological sequence as well as more accurately date the ceramic typology.

The Eastern Settlement Zone, in contrast, most likely saw sporadic development, perhaps in the early phases, before occupation shrunk back to the central core.

Other research aims for the forthcoming post-excavation analysis should be:

- What was the primary economy of the settlement? Is there any evidence of agriculturally associated activities such as food processing or water management?
- What can we learn from ecofactual and environmental data about diet, lifestyle etc. of the inhabitants?
- Can we learn anything about the status and connections/influence of the settlement? What were Freiha's relationships with Al Zubarah and other rural settlements in the region? Was Freiha involved in wider networks across the Gulf, and how does it compare to contemporary sites in the region?
- How do the phases of occupation at Freiha relate to those uncovered at Al Zubarah?

4. Field Survey

David Mackie

4.1 Introduction

This season saw the completion of the fieldwalking survey of the UNESCO Buffer Zone, begun in December 2009 in order to identify and record all evidence of human activity in the immediate vicinity of Al Zubarah. This intensive transect survey was part of the wider regional investigation of north-western Qatar.

Two surveys, undertaken by the Qatar Islamic Archaeology and Heritage Project (QIAH) and the Birmingham Archaeology Unit as part of the Qatar National Heritage and Environment Record (QNHER) north and south of the Al Zubarah road, respectively, resulted in the discovery and mapping of more than 400 sites of varying types and periods (Figure 4.1).

This report will broadly describe the major site types encountered. For a more detailed report, please see Appendix X.

4.2 Methodology

Analysis of aerial and satellite imagery complemented by intensive field survey and ground-truthing were the basis for both projects. While the QIAH survey aimed primarily to cover the extent of the UNESCO Buffer Zone for archaeological remains, the QNHER survey documented the impact zone of the proposed Qatar Bahrain Friendship Bridge south of Al Zubarah. Ground-based methodologies of both surveys are largely comparable.

With the help of handheld GPS units, the respective survey areas were traversed in evenly spaced transects, and any sites or potential sites of human activity recorded on paper and with photographs. Finds were logged but only collected if they were of explicitly diagnostic value.

All sites have been registered according to the QNHER Survey Manual. In a GIS, they can be categorised according to various criteria, such as site type, period, preservation and threat of damage.

4.3 Site Types

4.3.1 Abandoned Settlements

There are 3 abandoned settlements in the UNESCO Buffer Zone. These are the remains of previously substantial villages from the late Islamic period, abandoned prior to or during the 1970s. All 3 settlements had, at some stage in their history, forts associated with them.

Ain Mohammed (QNHER 10192)

Situated ca. 4km north-east of Al Zubarah town, this village is characterised by a number of relatively recently derelict buildings, a walled enclosure and two walled cemeteries. Aerial photographs show Ain Mohammed to be still in use as a farm in 1958.

The location of the late village has been in use for some time. Survey identified the remains of an

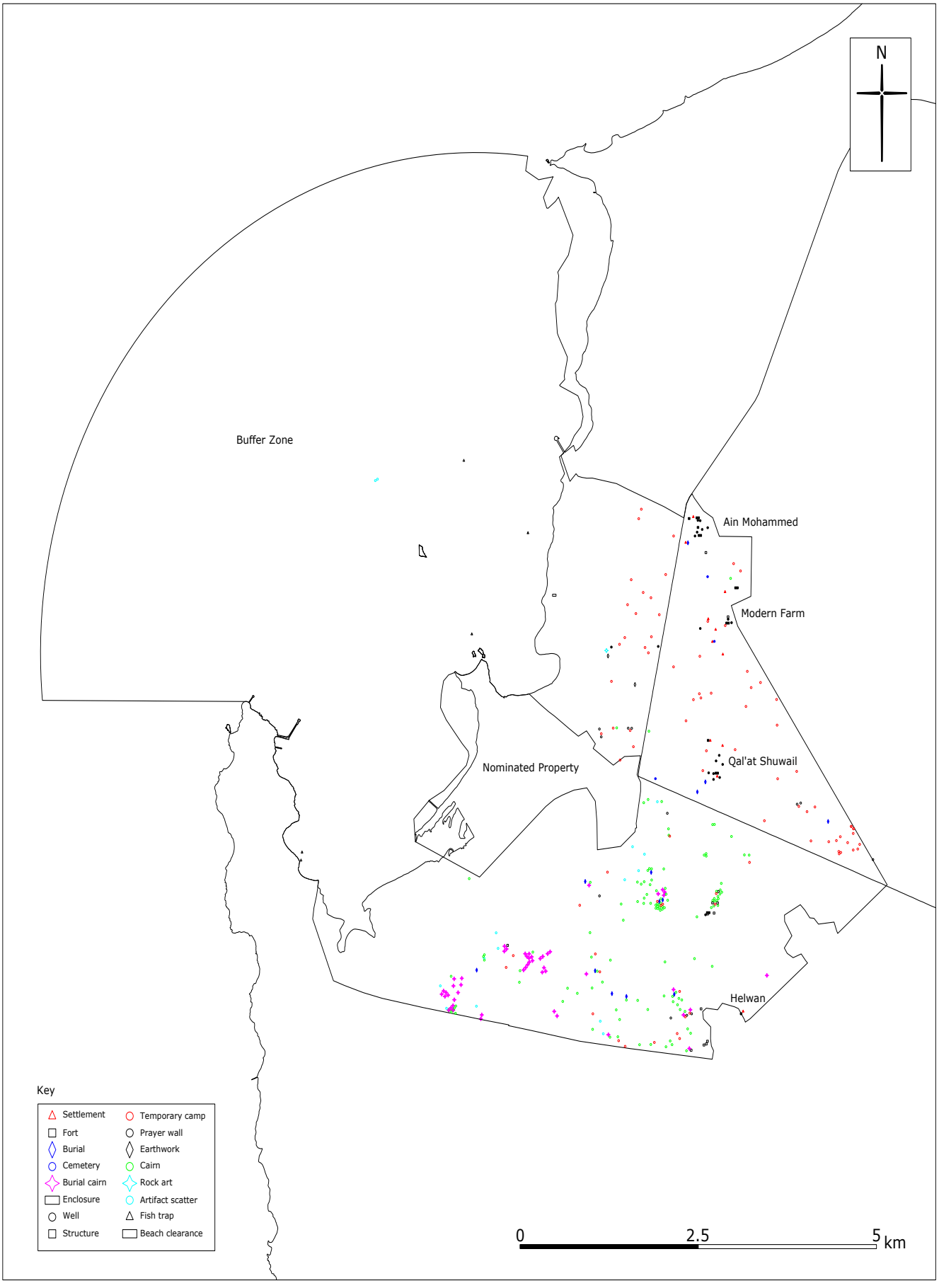


Figure 4.1: Overview of Archaeological Sites in the UNESCO Buffer Zone

earlier settlement and a fort (QNHER 499), several large wells, and other ephemeral structures. In addition, a further likely earlier settlement (QNHER 10239), consisting of a series of linear structures in a NW-SE alignment reminiscent of the early Islamic sites at Musaikah (Mackie 2012) and elsewhere in the north-west of Qatar (Mackie & Eddisford 2011), lies separated from the later village by a modern road; its relationship to the fort and other structures to the immediate north is unclear.

In the wider vicinity, a number of possibly earlier settlements are situated c.1.2km south-east of Ain Mohammed and consist of five small linear ruined structures (QNHER 3226, QNHER 3227, QNHER 3228, QNHER 3229 and QNHER 10244). All are aligned NE-SW and are located close to an area of *rawdha* containing several wells. A large part of the *rawdha* has subsequently been obscured by a modern farm.

Qalʿat Shuwail (QNHER 10325)

This site is situated c.1.1km east of Al Zubarah Fort and is comprised of a small, ruined fort (QNHER 10320) on a raised area of lithosol within a large irregular area of *rawdha*. Surrounding the fort, along the edges of the *rawdha*, are several groups of dispersed ruined stone and pisé structures (QNHER 10321, QNHER 3670 and QNHER 10325) and a series of wells.

The site was briefly mentioned as a fort contemporary with Al Zubarah in 1850, and surface pottery collected at the site generally suggest an 18th century date. Shuwail may have played a

Figure 4.2: Qalʿat Shuwail, the fort and nearby settlement features (SAC-0054 - 0058)

role in the water supply of Al Zubarah (Figure 4.2).

Helwan (QNHER 3)

The site is situated on the higher ground north-east of a large irregular area of rawdha and covers an area of 140m², which includes a number of ruined stone structures, middens, cemeteries and a possible fort (QNHER 359). Like other settlements in the hinterland of Al Zubarah, this site acted as a satellite to the bigger town and it is likely it supplied Al Zubarah with livestock, agricultural products and perhaps water.

4.3.2 Prehistoric Features

A minimum of 52 prehistoric burial cairns and burial cairn clusters were recorded to the south of Al Zubarah, mainly along the old raised shoreline that also includes the site of Wadi Debayan (QNHER 141) (al Naimi et al 2011). Signs of prehistoric activity north and east of Al Zubarah are considerably more sparse, consisting primarily of isolated find spots of chipped stone and pottery.

4.3.3 Rock Art

A single rock outcrop, Bala'a (QNHER 3680), lies 1.4km to the north-east of Al Zubarah. This outcrop has multiple carvings in addition to some carved graffiti. The outcrop shows clear signs of quarrying activity in the past, as well as more recent damage.

The two main designs found on the outcrop are a rosette pattern made up of a central depression surrounded by other small circular depressions, and two parallel lines of circular depressions. Other single carved sub-circular and oval shaped depressions are also found. In general these are thought to relate to the prehistoric period of the area.

4.3.4 Cemeteries

There are three cemetery sites within the survey area, excluding the four associated with the abandoned settlements at Ain Mohammed and Helwan. The burials are defined by oval and linear cairns that have a head and foot stone marker. The condition of the burials varies between sites. Some of the cemeteries have no visible boundary or enclosure, while others have an earthwork bank that has been superseded by a concrete or substantial limestone block wall.

Two small unenclosed cemeteries were recorded to the south of Ain Mohammed, one situated on the edge of an area of rawdha (QNHER 3649) and the other within an earlier settlement (QNHER 792). Another large walled cemetery (QNHER 10322) is located c. 330m east of Al Zubarah Fort and is enclosed by a wall. The date of the cemetery is unclear, but it may relate to the former settlements at Qal'at Murair or Qal'at Shuwail.

A further 13 sites were recorded which either have a single grave or two to three graves. These sites are ambiguous in nature, as some of the cairns do resemble graves with markers while others do less so. Occasionally graves are found within earlier abandoned settlements. Some have been marked by outlying marker cairns.

4.3.5 Wells

Of the wells recorded in the Buffer Zone, not including the well structures associated with Qalʿat Murair, 19 are in the immediate vicinity of the abandoned settlements of Ain Mohammed and

Qalʿat Shuwail.

The wells are either circular or square in shape, with a stone lining surrounded by the eroded remnants of the excavated spoil. Some have had later cement render applied to the lining as well as stone and cement cappings, troughs and cisterns. Some well linings have collapsed, and some appear to have had no linings and have subsequently silted up.

Some still retain water while others are dry and have subsequently been used as rubbish pits.

Usually, around these wells and within these areas of rawdha there are other sub-circular grass-filled depressions which could represent silted up wells. Single well sites were recorded in small areas of rawdha and some of the unlined wells appear to have been been re-excavated by machine at a later date.

4.3.6 Fish Traps

There are five intertidal five fish trap systems around the coast within the Buffer Zone. They are comprised of stone walls that form long arcs along the coastline. They occur close to coastal settlements as in the case of the two southern systems (QNHER 10268 and QNHER 10269) on the Ras 'Ushayriq peninsula. Another small system (QNHER 10213) runs north-east from the promontory to the north of Al Zubarah. Finally, two traps (QNHER 10173 and QNHER 10174) were recorded to the west and south-west of the former settlement destroyed by the

Figure 4.3: Fish Trap QNHER 10174 (SAB-0097).

construction of the compound south of Freiha (Figure 4.3).

4.3.7 Temporary Camps

These sites make up the majority of the sites recorded during the survey; in all 84 were recorded. Temporary camps are commonly found on the lithosol but tend to be located close to the edge of or within an area of *rawdha*. They are characterised by having one to four or more rectangular or square areas marking the former position of a tent. These areas are defined either by low earth and stone banks formed from the material that has been cleared away, or alignments of stones placed around the edges of the tent position. Occasionally, sand and shell spreads define some internal and external areas. Some of the areas of *rawdha* have been used over a long period of time, and among the more recent camps remnants of earlier, subtle, more ephemeral camps can sometimes be discerned.

The arrangement and size of these temporary camps sites varies from site to site as does the date. All tend to be orientated NE-SW against the prevailing wind, with the majority of the sites being defined by single or double positions, while the older sites have two or three tent positions in a row. A number of sites had additional features associated with them. Some, but not all sites, had clearance cairns forming small clusters or elongated mounds. Singular cairns often mark a high point or define the edge of the site. Five of the sites have a number of small cairns surrounding a tent position, which may mark the location for the guy ropes.

4.3.8 Prayer Walls

These features are comprised of an alignment of stones with a semi-circular niche halfway along its length and a cleared area behind. Usually, these are located a short distance away from a temporary camp, and are orientated towards the southwest. Other variations recorded consist of a small, subsquare or rectangular low wall orientated towards the southwest. Single prayer walls were recorded on the lithosol and within areas of rawdha.

4.3.9 Other Site Types

In addition to these site types, which make up the majority of archaeological evidence in the UNESCO Buffer Zone, isolated structures, enclosures and earthworks have been recorded. Beach clearances and modern disturbances make up another small percentage of the human activity in the area.

Among the more ambiguous features are large numbers of cairns, which might have been - or indeed still may be - marker cairns and way points, as well as positional markers for tent corners and sides.

4.4 Conclusion

Survey work in the Buffer Zone and beyond has revealed an active and connected hinterland beyond the coastal settlements of northern Qatar, dating back into early prehistoric times and demonstrating a strongly mobile way of life that supported and complemented the larger towns and villages in more recent times. The procurement and distribution of water played a pivotal role in the location of settlements and related features, and to this day dictates the concentrations of sites and activities. The large number of temporary camps and small structures, however, demonstrate powerfully that the desert in between the towns and wells was far from empty, and continues to be part of the identity of the inhabitants of northern Qatar.

5. Finds and Object Conservation

Holly Parton, Marianne Schwartz and Natasha Pasajlic

5.1 Introduction

Ever since the first season of study, finds from the various excavation points in Al Zubarah, Freiha, Murair and Fuwairit have illuminated and complemented the architecture of late Islamic settlements and the lives of their inhabitants. They help dating the various phases of occupation and tell of the vast networks of trade and exchange that influenced the 18th and 19th centuries in northern Qatar.

During the 2013 spring season, many new finds were catalogued for further study, conserved, and illustrated. A large number of objects from Al Zubarah, Freiha and the Regional Survey project has been selected and processed for permanent exhibition in the National Museum of Qatar, and additional finds from Al Zubarah told the story of the 18th and 19th century town at the 4th Joint GCC Archaeology Exhibition in Bahrain.

5.2 Field Objects

Amongst the new finds are, in particular, architectural and decorative plaster fragments and complete structural arches from ZUEP04 (see Chapter 2). Intricate geometric designs, impressed or cut, hint at a combination of quiet elegance and elite display (Figure 5.1).

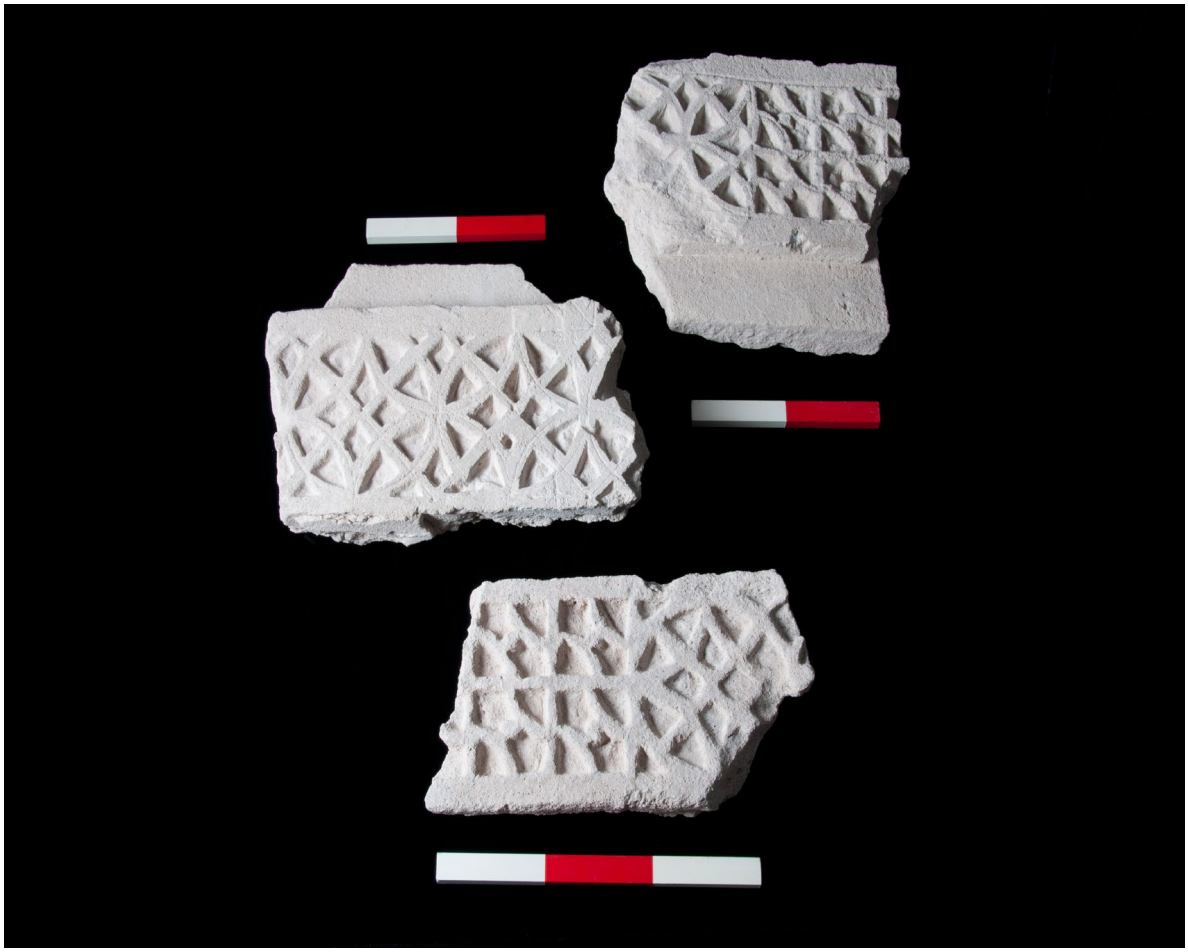


Figure 5.1: Architectural Plaster with impressed decoration. (OE-0062)

Objects selected for display at the 4th Joint GCC Archaeology Exhibition in Bahrain in June 2013 all highlighted particular aspects of life in Al Zubarah, such as commerce, pearl diving, jewelry or glassware (Figure 5.2)

Figure 5.2: Objects at the 4th Joint GCC Archaeology Exhibition. Top left: Coin, obverse, with Selim's royal cipher (OE-0069). Centre left: Bottle stoppers. Bottom left: Bottom vessel neck (OE-0035). Top right: Knife blade (OE-0984). Bottom right: Pearl in shell (OE-1086).

5.3 Object Conservation

Before most objects chosen for the exhibition were ready for display, they required conservation to control and counter-act further corrosion and surface cracking due to the large percentage of salts in the soils that preserved them.

In addition, a large number of ceramic objects and sherds were conserved for further study and analysis by specialists from Denmark.

5.4 Specialist Analysis

This season saw the continuation of specialist analyses of ceramics and fish bone, and the beginning of a study of the shells and invertebrates from Al Zubarah. Specialist reports are summarised in Chapter 6 and fully available in the Appendices.

The next seasons of work will include further specialist analyses of objects and materials to continue learning about the people who made and used them.

6. Specialist Reports

6.1 Ceramics

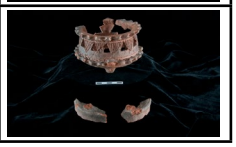
Agnieszka Bystron

The recording and analysis of ceramics from Al Zubarah continued in the spring of 2013 with a focus on loci from ZUEP04. The numerical data comprises sherd count, estimated number of vessels and weight. Diagnostic sherds were accessioned in the Pottery Reference Collection, drawn and photographed. Special or particularly fragile finds were conserved and catalogued.

	Reference Collection	Total Catalogued	Catalogued 2013
Al Zubarah	2362	460	243
Freiha	1415	35	7
Murair	88		
Survey	150		

Selection of Characteristic Wares

Ware	Form	Catalogue	Provenance	Type	Dating	Picture
Chinese Blue and White Porcelain	Bowl	ZUEP04 Locus 4597 Potcat 274	China; Jingdezhen or Dehua	Porcelain	18th - 19th century	
Chinese Blue and White Porcelain	Jar	ZUEP04 Locus 4015 Potcat 453	China; Jingdezhen or Dehua	Porcelain	18th - 19th century	
Chinese Imari	Lid	ZUEP04 Locus 4015 Potcat 449	China	Porcelain	18th - 19th century	
Chinese Imari	Bowl	ZUEP04 Locus 4015 Potcat 456	China	Porcelain	18th - 19th century	
Modern Porcelain	Small Lid	ZUEP04 Locus 4507 Potcat 271	Japan (?)	Porcelain	18th - 19th century	
Roulette Glazed	Bowl	ZUEP04 Locus 4006 Potcat 435	Iran	Sandy, friable yellow ware	18th century	
Yellow Glazed Manganese Painted	Bowl	ZUEP04 Locus 4507 Potcat 260	Iran	Friable, pale yellow fabric	18th century	
Green Glazed	Bowl	ZUEP04 Locus 4006 Potcat 434	Iran	Pale cream, coarse sandy ware	18th century	

Ware	Form	Catalogue	Provenance	Type	Dating	Picture
Alkaline Glazed	Oil Lamp	ZUEP04 Locus 4507 Potcat 264	Iran	sandy, hard-fired ware	late 17th - 18th century	
Creamy Sandy Ware Alkaline Glazed	Bowl	ZUEP04 Locus 4507 Potcat 259	unknown	cream colour, hard sandy clay	18th century	
Creamy Sandy Ware	Jar	ZUEP04 Locus 4507 Potcat 257	Aali (Bahrain)	cream colour, hard sandy clay (well levigated)	18th - 20th century	
Creamy Sandy Ware	3-Handled Jar	ZUEP04 Locus 4938 Potcat 427	Aali (Bahrain)	cream colour, hard sandy clay (well levigated)	18th - 20th century	
Julfar 1	Flat Lid	ZUEP04 Locus 4006 Potcat 436	Julfar (Ras al-Khaimah)	hard-fired, orange	18th century	
Julfar 2	Lid	ZUEP04 Locus 4507 Potcat 266	Julfar (Ras al-Khaimah)	hard-fired, dark grey with inclusions	18th century	
Julfar 4	Cooking Pot	ZUEP04 Locus 4006 Potcat 268	Julfar (Ras al-Khaimah)	brittle, black ware	17th - 18th century	
Buff Coarse Ware	Jar	ZUEP04 Locus 4006 Potcat 448	Iran (?)	very coarse grey/pinkish, with black inclusions	18th century	
Reduced Coarse Ware	Jar	ZUEP04 Locus 4006 Potcat 447	Iran (?)	very coarse grey/pinkish, with black inclusions	18th century	
Julfar (?)	Incense Burner	ZUEP02 Locus 9225 Potcat 430	Musandam (Oman) (?)	similar to Julfar ware		

6.2 Fish Bone Analysis

Lisa Yeomans

6.2.1 Introduction

During the 2013 spring season, zooarchaeological analysis of the fish remains concentrated on four aspects of the ongoing research: continuing compilation of a reference collection of Arabian Gulf fish; production of a reference guide; an osteometric study of Lethrinids (see Appendix); and analysis of the archaeological faunal remains from ZUEP01. This report provides a background to the research into the fish remains, outlines the results of the work in 2013 and discusses potential focus of future analysis.

6.2.2 Background

Fish was a major resource during the occupation of Al Zubarah, providing one of the main sources of food for the inhabitants of the settlement. Without this source of subsistence, settled occupation in the desert environment would have been next to impossible. The Arabian Gulf contains a relatively low species diversity of fish fauna; species dispersed into the marine basin from the Indian Ocean though the Strait of Hormuz when the marine basin formed. High salinity and water temperature limits the range of fish, although an estimated 465 species currently occupy this body of water (Kuronuma and Abe 1986), with the greatest diversity along the Iranian coast. Traditional fishing methods include the use of *gargoors*, basket traps with a funnelled entrance which are baited and set along the sea floor, or intertidal barrier traps or *hadrah* that direct fish into an arrowhead-shaped catchment area with the outgoing tide. Other methods of fishing in the past included using casting nets, beach *seines* and handlines. A fuller discussion of traditional fishing is given in Bangsgaard and Yeomans (forthcoming) with additional information of the traditional use of fish.

The overall aim of the work on the fish bone from Al Zubarah is to understand how fish were utilised by the population inhabiting the site. This encompasses a wide range of questions: Which fish were caught and how? Where were people fishing and is there any evidence for seasonal variation in fishing practices? What were the fish processing methods? Is there spatial and temporal differences in the utilisation of fish? Is there any evidence for overfishing or other human impact on the marine environment and how does this compare to the effects of modern fishing?

6.2.3 Reference Collection and Identification Guide

In total 99 specimens have now been prepared for the reference collection. This covers 42 families and 79 species of fish stored at Al Zubarah Research Station. The production of a photographic reference guide is well underway and could be completed after one more season of work.

6.2.4 Analysis of Fish Bone from ZUEP01

Research Questions

Research focus during this first analysis of archaeological fish bone concentrated on a comparison of Phase 6 (initial settlement) and Phase 5 (urban occupation) material in ZUEP01. Evidence for the initial occupation in ZUEP01 consists of numerous temporary structures represented by post holes as well as large rubbish pits, some containing frequent fish bone amongst the discarded

waste. The settlement quickly developed into the extensive urban layout seen in Phase 5 with several courtyard houses excavated from this phase. It is possible that once the town became more established, fishing developed with exploitation of more deep water species reflecting the increasing role of the town in trade. Perhaps construction of intertidal fish traps nearby may have changed the fish brought for sale to the town's population. The sudden increase in the exploitation of the fish necessary to feed the large population of Al Zubarah also may have had an impact on the marine environment. With these questions in mind, fish from Phase 6 (Space 198) were recorded and compared with the occupational remains from Phase 5 cooking rooms (Space 110 and Space 166) in courtyard houses, as well as Space 191 (structure) and Space 189 (street).

Methodology

After the initial sorting of fish from mammal, reptile and bird bone, the different classes of bone were weighed and general description of the fish bone in the locus was noted. The next stage was to record the individual fish bones to family, genus or species level where possible. Not all elements of the fish skeleton are recorded due to the size of the available fish bone assemblage and the difficulty in identifying some elements. Previous researchers working on Arabian Gulf fish assemblages (Beech 2004) and on fish bone assemblages in general (Colley 1990) selected specific elements to be recorded: articular, basioccipital, cleithrum, dentary, hyomandibular, maxilla, post-temporal, premaxilla, opercular, quadrate, vertebra and vomer. A few additional elements specific to certain species were recorded, such as the pharyngeals of parrotfish, the neurocranium, pectoral or dorsal spines of catfish and scutes of Carangids. Taphonomic changes to the bone such as cutmarks and burning, and anatomical measurements were taken following Morales and Rosenlund (1979).

Preservation Considerations

Overall the level of preservation of the fish bone is very good. However, in comparison with the reference collection it has become apparent that some species' bones are very porous and extremely unlikely to survive intact enough to allow identification. Particularly interesting is that one fish species in a taxonomic family can have a completely different bone density to another fish in the same family. For example, the black pomfret (*Parastromateus niger*) and black banded trevally (*Seriolina nigrofasciata*) are members of the Carangidae family and have a very low bone density with the bone structure forming thin struts (Figure 8.1). Many other species of Carangidae have a more solid bones. Whilst interpreting the fish species identified in the archaeological record it should be remembered that not all of the species caught will be represented accurately by the faunal record.

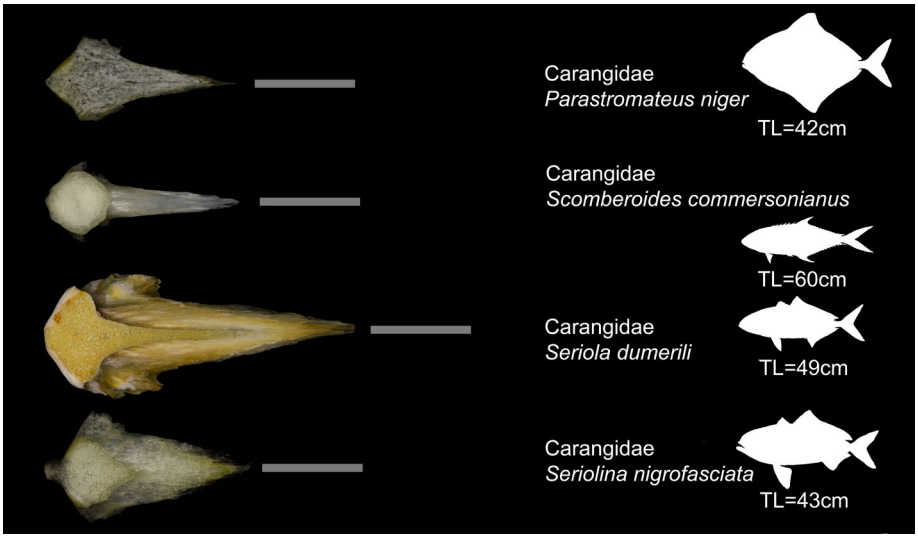


Figure 6.1: Different bone densities of the vomer bones of a selection of Carangids from the modern reference collection (scale bar = 1cm)

Species Representation

A full list of species recorded can be found in Appendix X. Of particular significance are species of taxonomic groups that show a substantial change in representation between Phase 5 and Phase 6. Catfish, for example, decrease from forming over 10% to less than 4% of the NISP (number of identified specimens) between Phase 6 and Phase 5. Similarly, parrotfish representation falls from over 9% to less than 5% whilst the Sparids increase from just over 16% to more than 27% in Phase 5. Also notable is the less dramatic decrease of Siganids from more than 6% to less than 4%. Overall, however, the basic species representation was relatively similar and there is no evidence for a significantly different utilisation pattern of fish in the various spaces of the Phase 5 structures. Larger Carangids and Scombrids are not well represented in either phase, suggesting that deep-water fish were not caught regularly. Frequent Lethrinids, Serranids and Sparids indicate the use of *gargoors* and handlines. The presence of mullets and silver biddies (Gerridae) in lower numbers indicates that fish probably caught in *hadrah* or beach seines were present but not as important. This is not surprising since the intertidal fish traps are found further north along coast of Qatar and may have been used by the smaller settlements whilst the waters around Al Zubarah were kept open and accessible for larger vessels.

Figure 8.2 shows the distribution of species for Phase 6. Much of the bone derives from the larger rubbish pits as opposed to post holes, which were filled with relatively sterile sand. Of particular note is that catfish and parrotfish are not concentrated in only a few features. This is important for catfish since the number of vertebrae in a catfish skeleton can artificially inflate the importance of this species when using NISP counts alone. This is also confirmed by a high minimum number of individuals (MNI) of catfish in two pits which contained at least four and 11 individuals respectively on the basis neurocranium fragments.

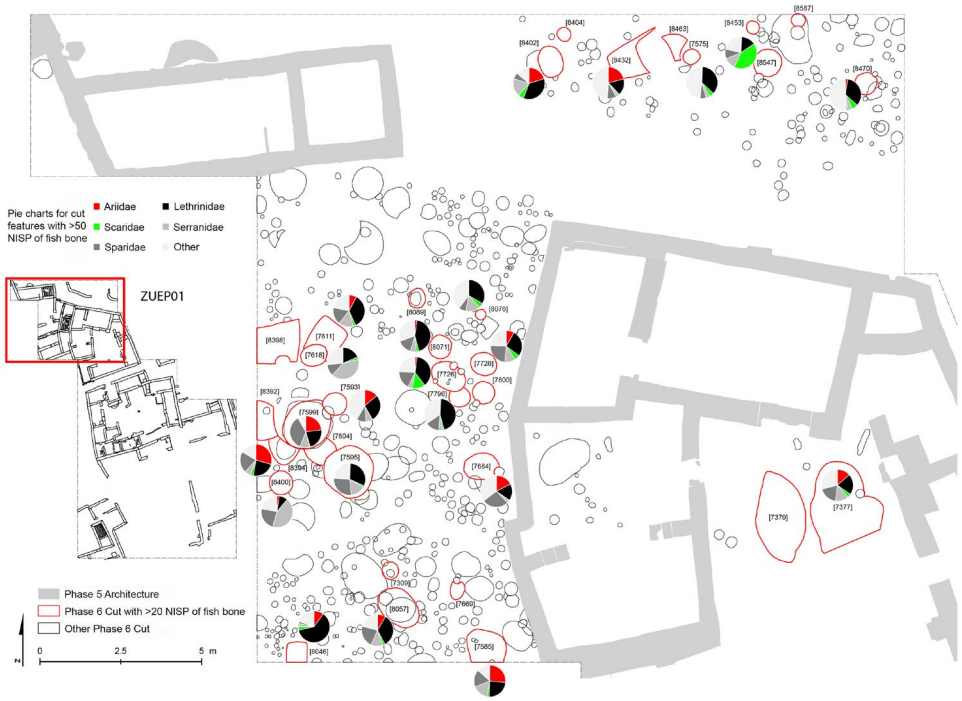


Figure 6.2: Frequency of main taxonomic groups of fish in Phase 6 features.

The distribution of the main taxonomic groups of fish in Phase 5 is similar between the four spaces analysed or partially analysed (Figure 8.3). The stratigraphic sequence in the two cooking spaces (Space 110 and Space 166) allows comparison of the species representation over time as these rooms continued in use. Illustrating the species proportional representation on the matrices of these two spaces shows that catfish are very infrequently present and only within few contexts. Parrotfish, on the other hand, are present throughout the sequence, and there does not appear to be any significant change in the other main taxonomic groups.

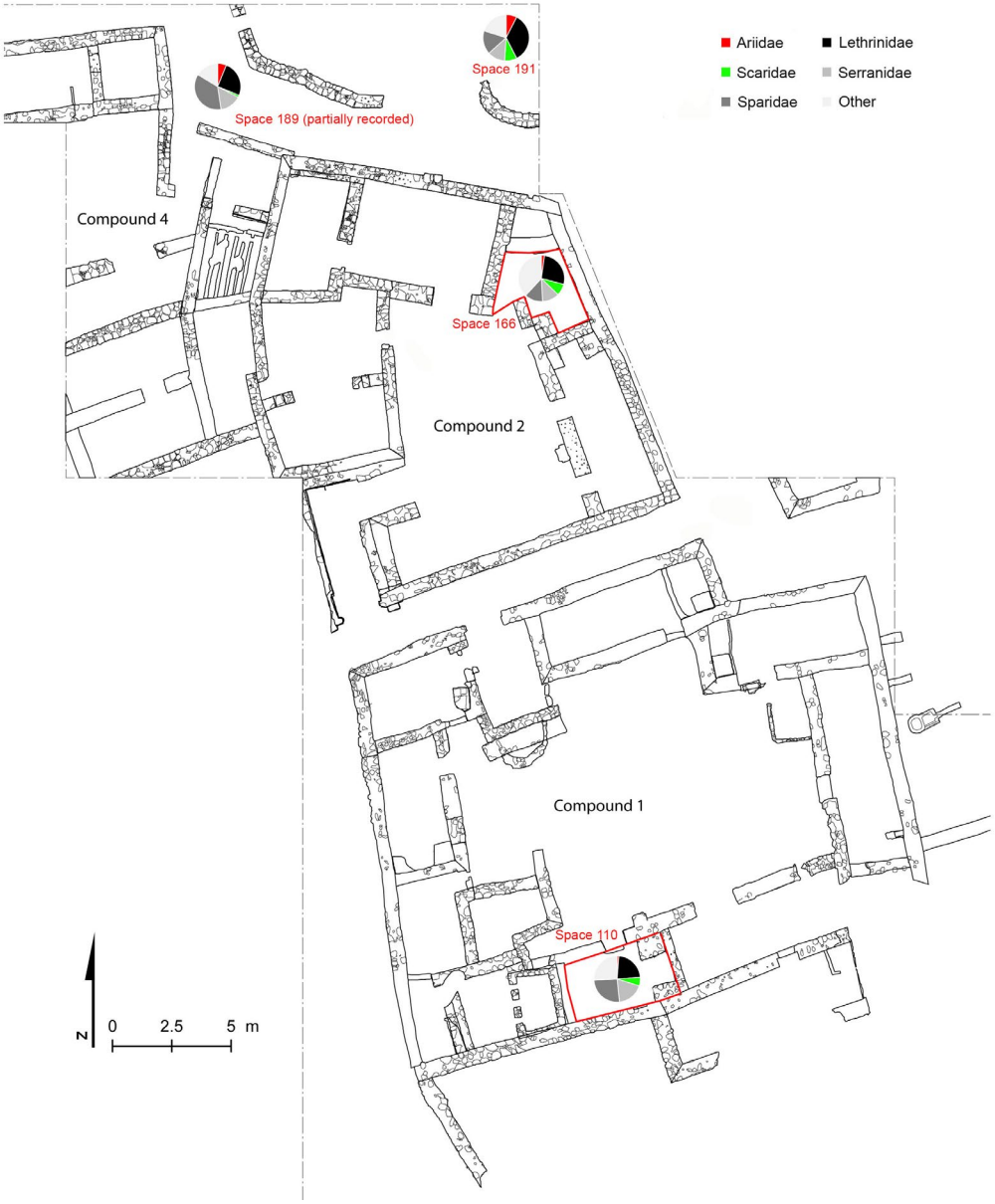


Figure 6.3: Frequency of main taxonomic groups of fish in Phase 5 spaces.

Overall, the main change in the representation of fish species between Phase 6 and Phase 5 is the substantial decrease in catfish. Without more complete archaeological specimens it is impossible to determine which exact species were caught during the occupation of Al Zubarah. The substantial decrease in catfish between Phase 6 and Phase 5 may reflect the decimation of this species in coral reefs as catfish are a slow growing and late maturing species, making them vulnerable to overfishing (Raje and Vivekanandan 2008). Other reef associated fauna such as Angelfish and Wrasse also decrease between phases, however, these species never formed a high proportion of the identified fish bone. Although the presence of the mudflat dwelling catfish *Arius bilineatus* cannot be ruled out, the general lack of other species that inhabit the mudflats such as the silver pomfret (*Pampus argenteus*) and the complete absence of lizardfish species suggests that the mudflats were not heavily fished.

Fish Preparation and Cooking

The accumulation of large quantities of fish remains in two rooms dedicated to the preparation and cooking of fish provides the ability to examine in detail these activities. Stratigraphic sequences within these rooms can be summarised as an accumulation of occupation deposits and consecutive *tannurs* made by lining the sides of a circular cut with clay and firing *in situ*. The

tannurs were frequently placed within the corners of the rooms and over time were replaced by later cut features as occupation deposits accumulated. Most of the *tannurs* contain a primary fill of ash and upper fills similar to the occupation deposits which accumulated once it was no longer functioning.

Examination of the skeletal elements of the fish bone that accumulated in the larger of these two cooking rooms (Space 110) shows that fish were generally brought into the cooking area whole. There is no evidence of primary butchery such removing the heads or tails elsewhere. All parts of the skeleton of the three main families of fish (Serranidae, Sparidae and Lethrinidae) are present within the room. A slight bias against the cleithrum of Sparids and Lethrinids is explainable by the fragile nature of this bone. Drying or salting of fish can also result in a skewed skeletal element representation and again, with these more common fish, there is no evidence that the fish were brought into the cooking area as anything but fresh, whole fish. The presence of scales recovered from the flotation samples also indicates that the descaling of the fish took place within these rooms. The full range of fish consumed at Al Zubarah have been found in Spaces 110 and 166.

Some fish bones have been burnt along the margins where the bone would have been exposed as the flesh shrunk during cooking. These indicate that some fish were cooked whole and the bones removed after cooking. Presumably much of the waste from these kitchen areas was cleaned up and discarded into the middens or thrown into the communal areas such as the streets. However, over time, many bones ended up being left within the cooking room, resulting in the extensive build-up of occupation deposits that have been excavated.

6.2.5 Conclusion

In summary, the fish exploitation at Al Zubarah focused on fishing the shallow waters around the coast, probably using *gargoors* and handlines. Pelagic fish were only consumed on occasion and there is no evidence that the structures within ZUEP01 had access to different species of fish, although social differences may well be found to exist at the larger scale as research progresses. Cooking of fish in Al Zubarah often took place in specialised rooms in *tannurs* which grilled the fish, allowing their consumption over a period of two to three days.

Analysis of the fish bone from Al Zubarah can address many more questions about the use of fish and daily lives of the inhabitants of the site than has been possible so far. One of the crucial aspects of the study in the forthcoming seasons will be comparison of the faunal remains from other areas of the site, allowing the examination of spatial and social differences across the settlement. Of particular importance will be the analysis of the material from the midden deposits adjacent to the large compound in ZUEP04 and the midden sequence excavated from outside the eastern wall of the town in ZUEP05. Although not currently excavated, it would be interesting to look at the midden deposits than infill the Phase 5 structures as these date to later occupation phases and will provide a greater time depth to the study of fish utilisation.

Future research should also concentrate on the use of fish as a seasonal resource. Fishing is most productive in the winter months, fitting well with the timing of pearl fishing and stone mining which took place in the summer months. Thin-sectioning of otoliths can determine the season of capture of the fish, and as the sample of archaeological otoliths increases it is worth pursuing this avenue of enquiry.

6.3 Invertebrate Analysis

Victoria Morgan

6.3.1 Introduction

The spring 2013 season marked the commencement of invertebrate research at Al Zubarah. This consists mainly of the analysis of marine shell, but also includes other invertebrate remains found in the archaeological record at Al Zubarah such as cuttlefish, crustaceans, sea urchin and coral. Research for the season focused on continuing the reference collection of Arabian Gulf invertebrates begun during the 2011/2012 field season, creating a database for recording invertebrates, clarifying criteria and providing guidelines for the collection of molluscs and other invertebrates found on-site, and beginning analysis of invertebrate material recovered from ZUEP01. The following report discusses research of the invertebrate remains, summarizes the findings of the work conducted in spring 2013, and examines potential for further analysis.

6.3.2 Background

Mollusc shell has been found throughout Al Zubarah, both within the historical site and in the natural environment surrounding the settlement. Typically present along the tidal zone, it can be washed inland during extreme high tides and can also be found in fossilized form in the sediment on which the town was built. Often, it was also gathered from the marine environment or quarried nearby and used in a cultural context. Besides in diet, molluscs can reflect use as raw material from pearl fishing or in a social context such as ornamentation as game pieces. Shell, both loose and imbedded in beachstone, has also traditionally been used in the region for construction within loose gravel and compact floor surfaces, and in wall construction.

6.3.3 Reference Collection

The invertebrate reference collection begun during the 2011/2012 season was continued. Identification thus far include 32 Bivalva, 1 Cephalopoda, 1 Schaphopoda, 1 Echinodermata, and 21 Gastropoda specimens. The reference collection is incomplete as there are many more species present in the region yet to be included.

6.3.4 Collection Guidelines

In studying the invertebrate recovery at Al Zubarah, the parallel occurrence on-site of archaeological, palaeontological and recent marine shell was also addressed. Common invertebrate species found within these contexts and the taphonomic attributes within each were observed. Examples of fossilized shell deposits within beachstone were examined for distinguishing features which would differentiate it from that within archaeological and biological contexts. To prevent future variation in collection and the potential impact it would have on the recovered assemblage, a field reference guide to on-site invertebrate collecting was prepared for use by field archaeologists This lists and provides images for the various types of archaeological shell and other invertebrates that may be encountered on-site.

6.3.5 Methodology

Recording of invertebrates begins by sorting and identifying specimens by taxa. Once identified to class, order, family, genus, or species using published identification guides and a scientifically-edited database (Bosch et al. 1995, Boxshall et al. 2013, DuPont and Altamimi 2008, Sharabati

1981), additional data from counting, weighing, measuring, and noting distinguishing features are recorded. Additional details on the invertebrate including condition, modification and natural degradation are documented. This can help indicate whether they are present in an ecological, paleontological, or archaeological context. Furthermore, shell recovered from soil samples during the flotation process are also studied. The remaining material can include a high concentration of smaller marine shell, primarily small gastropods.

6.3.6 Analysis of Invertebrate Remains from ZUEP01

The focus of archaeological analysis conducted this season consisted of samples from ZUEP01 in conjunction with archaeoichtyological and archaeobotanical studies of Phase 5 cooking Spaces 110 and 166. Recovery from both occupational debris and *tannur* fills were analysed.

A total of 685 invertebrate remains have been identified to class, order, family, genus, or species level. The assemblage contains primarily marine molluscs. The habitats from which these specimens originate indicate a local harvest within the general vicinity of Al Zubarah. Pearl oysters (*Pinctada* sp.) dominate the assemblage and are present in most deposits. Although it is edible, *Pinctada* sp. is not thought to constitute a significant dietary preference due its main function as an economic resource in the pearling industry. *Diplonata* sp. is also present in large numbers, but is highly fragmented. Despite the frequency of these common species, there are no large concentrations present which might indicate large-scale use.

Evidence of marine shell as a raw material was also observed. Cowrie shells (*Cypraea* sp.) were often worked with the dorsal side removed either for decoration or possible use as game pieces (Sharabati 1981). Modified *Pinctada* sp. and *Pteria* sp. shells exhibit signs of use wear and may also been used as tools.

The species present and amount of representation indicates that molluscs and other invertebrates were not the main dietary resource prepared in Spaces 110 and 166, but likely supplemented the food available. The majority of invertebrate remains were recovered from occupational debris of floor surfaces and not within the *tannurs*. It is also possible that some invertebrate food waste was removed and disposed of elsewhere.

6.3.7 Conclusions

Invertebrate analysis at Al Zubarah provides an opportunity to answer many questions on the role marine molluscs and other invertebrates played in the daily lives of its inhabitants. Variation in invertebrate remains throughout the site and through time may indicate changes in environment, particularly dietary resources available and exploitation through pearl fishing, and social preferences. Analysis of deposits from other spaces from ZUEP01 has begun, though recovery from both Bulk Finds and the Heavy Fraction remaining after flotation of soil samples must be completed.

Future research comparing invertebrate recovery throughout Al Zubarah, particularly from the large compounds and associated midden deposits of ZUEP04 and the midden sequence from the Outer Town Wall at ZUEP05 would further the interpretation begun at ZUEP01 by spatial and temporal dimensions. It could also give evidence of pearl fishing and other economic activities, diet and cooking practices, environmental exploitation and change, and social aspects such as class and gender. Additional comparisons can be made with invertebrate recovery from Freiha.

6.4 Archaeobotanical Analysis

Mary Anne Murray

6.4.1 Introduction

The plants found at Freiha and Al Zubarah were largely imported into these settlements as food, fuel, animal fodder (and subsequently in animal dung used as fuel), building materials, medicines, dyes, bedding, matting, textiles, tools, temper for pottery and plaster, basketry more. The efforts applied to their sampling, recovery, identification, statistical analysis and interpretation is essential to understand the complex dynamics of some of the most elemental aspects of daily life in Islamic Qatar.

The majority of the plant remains from both towns are primarily preserved by charring. In the arid environments of Al Zubarah and Freiha, there are also plants preserved by desiccation (or drying) which often preserves a wider range of plants and plant parts (e.g. seeds, fruits, stems, leaves, etc.). Some waterlogged rope has also been found in some of the deepest contexts at Freiha.

6.4.2 Sample Processing

Samples have been taken from the many diverse living areas within these towns – hearths, ovens, floors, pits, ash deposits, storage jars, middens and so on. These samples were recovered by flotation for charred remains, and by gentle sieving for desiccated remains.

Samples currently analysed consist of 528 from Freiha and 18 from Al Zubarah, as shown below by area.

FREP01	FREP02	FREP03	FREP04	FREP05	FREP06	FREP07	ZUEP01	ZUEP05
25	1	10	465	15	6	6	1	17

The spring 2013 season flotation program focused on 104 samples from four Spaces of ZUEP01 (110, 166, 191, 198). The heavy fractions from both Al Zubarah and Freiha are quite rich inpottery, bone, small objects and especially shell.

6.4.3 Plants

While many of the samples contain primarily wood charcoal, they have proven to be more diverse than was initially expected based on limited time for field analysis, as well as on the other archaeobotanical data from the Gulf. In addition to dates, rice and fish, evidence of cereals, legumes and fruits has been recovered. Below is a simplified list of plant taxa identified.

Cereals

- Bread or durum wheat (*Triticum aestivum/durum* – compact type)
- Hexaploid wheat chaff (*Triticum aestivum/durum*)
- Barley (*Hordeum vulgare*)
- Rice grain and chaff (probably Asian) (*Oryza* cf. *sativa*)
- *Echinocloa* grain and chaff (millet type grain)
- Possible millet types (*Panicoid* grains)

Legumes

- Lentil (*Lens* cf. *culinaris*)
- Faba beans (*Vicia faba*)
- Trigonel (*Trigonella* sp.) - possibly fenugreek
- Small members of the Fabacae family

Fruits

- Date (*Phoenix dactylifera*)
- Grape (*Vitis vinifera*)
- Peach (*Prunus persica*)
- Apricot (*Armeniaca vulgaris*)

Nuts

- Walnut (*Regia juglans*)

Fibre plants

- Coconut palm (*Cocos nucifera*)

Weed/Wild taxa

- Poacae - grass family
- Cyperacae - sedge family
- Polygonacae - knotweed family
- Asteracae - daisy family
- Other, small-seeded weeds

The assemblege does not reflect large-scale crop agriculture tat this time. In most cases, the agricultural conditions were unlikely to have been suitable for much of the range of crop species present. The variety of wild taxa may have been used for a variety of functions besides nutrition.

The main fuel used was wood (and/or wood charcoal), although animal dung is present throughout. The ubiquity of date stones may indicate the use of these and/ or date pressings (from the *madbasas*). Very common through the charred assemblage are the lower portions of a robust grass. As in other parts of the Middle East and Africa, common robust grasses, such as *halfa* grass, are often used as tinder.

6.4.4 Conclusion

In contrast to the relative dearth of archaeobotanical data from the Gulf, the plant assemblages from both Al Zubarah and Freiha are providing an uncommon window into the presence of useful plants at this time. Due to the relatively late date of the assemblages, previous studies of trade routes pertaining to the region and beyond have a potential relevance that will also be explored.

7. Conservation and Restoration

Christian Fuchs, Bernadeta Schäfer, Anne Mette Harpelund

7.1 Introduction

The following document marks the final report on the work conducted by the Heritage and Conservation section of the QIAH Project at Al Zubarah during the spring of 2013.

The Conservation team addressed three objectives:

- the continuation of the restoration works in the Al-Zubarah Fort;
- the continuation of the consolidation works on the Al Zubarah Archaeological Site;
- the creation of a data recording and organization system and the establishment of a database.

The field team consisted of four staff members:

Moritz Kinzel is the head of the conservation department of the project.

Christian Fuchs was responsible for the coordination and supervision of the restoration works of Al Zubarah Fort and appointed as supervisor of the Heritage and Conservation department.

Anne Mette Harpelund was appointed to establish a recording system for conservation measures and to set up a database for project documentation.

Bernadeta Schäfer was responsible for the coordination and supervision of the consolidation works within the archaeological site.

Furthermore, mineralogist Robert Sobott was appointed as a consultant for questions of material properties and tests and as practical advisor; Paul Hofmann worked as a consultant for matters of restoration of surfaces.

The practical work was executed by the Danish contracting company Enna Enterprise with an average of 5 craftsmen and additional 11 workmen on the site.

7.2 Al Zubarah Fort

7.2.1 Repair Works

Two urgent subjects were tackled immediately upon arrival in Al Zubarah: the cracked plaster surface on the lintels of the northern portico and the earthen roof on the southern wing of the fort.

The cracks have appeared on the plaster that was applied in 2012. They were limited to the areas of the lintels above the porticos as well as above the window openings on the north wing. The cracks were studied, mapped and analysed and it was possible to determine sacking lathwork as the main cause. The lathwork was applied in a traditional manner with palm tree fibre ropes tied around the load-bearing Ipé joists. These ropes proved to be sacking after the plaster was applied. It was thus decided to remove the plaster from the affected zones and to fix the lathwork with non-corroding screws. A metal mesh of inox steel was introduced in order to

reinforce the plaster. The repair proved to be successful as no new cracks have appeared during the season.

Due to the limited capability of earthen flat roofs to cope with excessive public access, it was decided that only the southern wing was to receive a traditional earthen roof. This roof was closed for public visitors and rebuilding finished at the end of the 2012 season, but already at that time some problems were visible. Major issues were the extreme shrinkage of the clay during the drying process as well as the fact that the clay roof was planned to be inserted into an existing *limecrete* frame.

It was initially intended to keep the earthen roof and to find ways either to retrofit it or to redo it entirely in an optimized way. However, it became obvious that this approach would not lead

Figure 7.1: Roof of the southern wing being inserted. (ZUXE-0342)

to a sustainable solution. In close coordination with the representatives of the QMA it was thus decided to replace it with a *limecrete* roof, which was finished in the second half of April 2013 (Figure 7.1).

Parallel to these works the electrical lighting system for the rooms of the fort needed to be installed. This was designed to consist of LED light rails inserted into metal profiles providing indirect light to the rooms. At the end of the season the entire lighting system and the electrical installation was finished and ready to work. Until the connection to a mains electricity supply, the fort lighting is powered by a generator (Figure 7.2).

A test conducted by Dr. Robert Sobott determined the composition of the current interior plasters. It was established that the latest layer of the room surfaces was a white cement plaster. Following a series of tests a white cement-hydrated lime-sand mixture was chosen and applied to all wall repairs and completions. Interior surfaces were completed with the exemption of room G-01 which shows remains of a moulding; this will be finished in autumn 2013.

Furthermore, several smaller repair and restoration works took place: the steps to the northern and eastern portico, the wooden elements in the fort and the brass door lashes.

Two important issues remaining incomplete at the end of the season are the replacement of

Figure 7.2: Electrical installation and light rails in the interior of the fort.

the flag pole and the introduction of a new courtyard surface.

The aluminium flag pole intended to replace the current installation unfortunately proved to be insufficient for the maximum wind loads expected around Al Zubarah Fort (maximum wind loads in Qatar: 27 m/s. The available flag pole has a guaranteed stability until 25 m/s). A new, stainless steel flagpole will be purchased, and work will continue on the coordination of structural engineering work (calculation and drawing) and the production of the substructure, and transport to Qatar.

The renewal of the courtyard surface involves techniques and materials as yet unused in this combination in Qatar, as QMA requirements emphasized an objection to paving, natural stones or any other fixed surfaces. The new surface needs to be able to let rainwater penetrate as the fort has no drainage system. It was thus decided to try and test a surface that is widespread in Europe, but has not been applied previously in Qatar: “water-bound surface”. Water-bound surfaces consist of (at least) two different layers. The lower layer serves as a foundation and dissipates the loads. The upper layer is the actual walking surface. Whereas the lower layer consists of compacted crushed concrete or stone, the upper layer is composed of three different grain-sized sands. The water-bound surface derives its name from the fact that the material is placed with a clearly defined degree of humidity in the mixture. This humidity activates fine particles of the upper layer and helps the surface to obtain a certain binding strength. Several criteria do support the application of a water-bound surface: it consists of locally available material and blends with the colours of both the landscape and the building; it also it allows rainwater to drain away; it is closest in composition to the original surface; and finally, it is less disruptive to install, as no gutter system for drainage needs to be applied.

Due to the lack of experience with this kind of a surface in Qatar, tests needed to first be carried out to determine the suitability of the technique. This was finished in May 2013 in the Information Pavilion.

7.2.2 Documentation

All repair and restoration works were thoroughly documented in the form of daily site reports, which yielded precious information on finds as well as the history of the construction of Al Zubarah Fort. These data are recorded and photographed as part of the "room book", set up at the beginning of the season. The investigations in the fort should be complemented coral histories.

This documentation allowed the structured long-term observation of issues such as termite infestation, which was initially encountered in 2012 and was described as one of the major factors weakening timbers in the structure (Figure 7.3). Specimens of the insects were collected for species identification at the Federal Institute for Material Research (BAM) and the Thünen-Institut of Wood Research in Hamburg. The observations showed heavy infestation in two areas of the fort, but concentrated on the *danshal* joists as well as the matting. The termites live in underground colonies and can move freely within the walls. Continuous monitoring and control of termite infestations by repellent or termiticide are essential to ensure the longevity of the fort restorations.

Figure 7.3: Termite infestation underneath the ceiling in the fort.

A further element of documentation was continuous crack mapping on the roofs of the northern and western wing as well as courtyard façade of the western wing. These were suggested to result from thermal extensions of the roof slab. Subsequently, the existing extension joint between the northern and the western roof was thoroughly cleaned and filled with an elastic seal. The northern slab is now able to extend freely towards the west without causing tensions in the system, and movements have ceased.

Tests were conducted on the subject of local anhydrite production, which are the primary plasters both at Al Zubarah site and Al Zubarah Fort. In the future, anhydrite is intended to be produced in the nearby derelict village of Ain Mohammed.

A small sondage was excavated into the courtyard surface in order to clarify whether there are any underlying structural remains predating the fort, or whether it is situated directly on top of local bedrock, presumed to be anhydrite. While no previous activity could be detected in the sondage, the presence of extensive anhydrite bedrock deposits, which expand substantially when in contact with water, has further implications for the structural stability of the fort and

may account for the crack patterns on the facade of the fort.

7.2.3 Conclusion

Significant progress has been made on the restoration of Al Zubarah Fort. Especially the conclusion on the works on the roof of the southern wing and the insertion of the electrical installation must be considered a great success of the season. A technique for repairing the cracked facade surface was found and will be applied in upcoming seasons.

7.3 Al Zubarah Archaeological Site

7.3.1 ZUEP04

At the beginning of the season all walls and floors in the eastern and northern area of the compound (Spaces 3010-3019) were found without backfill, completely exposed. Before commencing further works in ZUEP04, an assessment on the state of conservation of architectural features in the area was necessary. A monitoring database was set up and data collected about the state of conservation before starting of the restoration work in 2011/2012, state of the walls and plasters after conservation, and documentation of the work progress in the current season.

Various measures were initiated in 2011/2012. Some of the walls were only consolidated (eroded stones replaced, voids in the structure repaired and eroded joints refilled). Some walls were consolidated and plastered. A main part of the historic anhydrite plasters that was meant to stay exposed was consolidated using acryl dispersion. The monitoring of the conserved features in the database helped to evaluate the success of the previous season's work and to decide which measures should be continued and which have to be rejected and substituted by other procedures.

Two different mortar mixes were used in 2011/2012 to rejoin walls, one based on hydrated lime (1.56) and the other on natural hydraulic lime NHL5 (1.2). Only the latter proved to be not only compatible with the historic material, but also did not show signs of erosion in the wall faces.

The consolidated walls were covered by plaster to protect the historic fabric, using two different plaster mixtures, an NHL5-based mixtures (1.55) and a hydrated-lime-based mixtures (1.56). Walls plastered with the mixture no. 1.56 show far less sanding and scarcely any flaking, concentrating generally in the areas adjusted to the historic plasters treated with acryl dispersion. Damages on the wall cappings occur independent of the mixture used and concentrate on tops of walls not higher than about 1.50 m. Voids in cappings which have been burst open by stones destroyed by salt crystallization allow water to penetrate into the wall structure. Salt efflorescence is common on all wall surfaces up to a height of about 60cm, particularly on the borders between the new plasters and the acryl-treated historic plasters (Figure 7.4).

The disintegration of the inner core that has been observed in case of wall <4456> is highly alarming. The wall was rejoined and covered with plaster mixture 1.55 in spring 2012. In the course of this season´s work, the wall has been opened and the core of the wall exposed. Not only the historic earth mortar, but also the brittle building stones inside of the wall were found powdering. It is possible that the NHL-plastering is too hard and the surface too tight given the fragile fabric of the wall structure. The disintegration of stones might be extremely favoured by their encapsulation inside the plaster and exposure to high temperatures, moisture and pressure. As it seems probable that this situation also prevails in other walls replastered with NHL-mixtures, it should be spot-checked by opening one of the walls in the beginning of the

Figure 7.4: Salt efflorescencing on the border between historic plaster and new plaster. (YD-0137)

autumn season 2013.

Historic plasters were consolidated in the previous season using 7%-solution of acryl dispersion SF016 (Primal). This treatment proved to be destructive to the treated plasters. They were found in a very poor state after only one year. The acryl dispersion turned the plasters into tight crusts, not permeable to dissolved salts. Consquently, that salts crystallized either underneath the plasters causing them to detach from the wall, or inside the plasters causing their dissolving, flaking and sanding. This phenomenon was observed on all treated historic plasters. Sometimes only the outer layer of plaster was penetrated by acryl; in these cases the inner plaster layer stayed stable while the outer one completely disintegrated. Generally, untreated historic plasters were found in better condition than the treated ones. However, the walls facing north were in far better condition than those facing south, east or west (Figure 7.5).

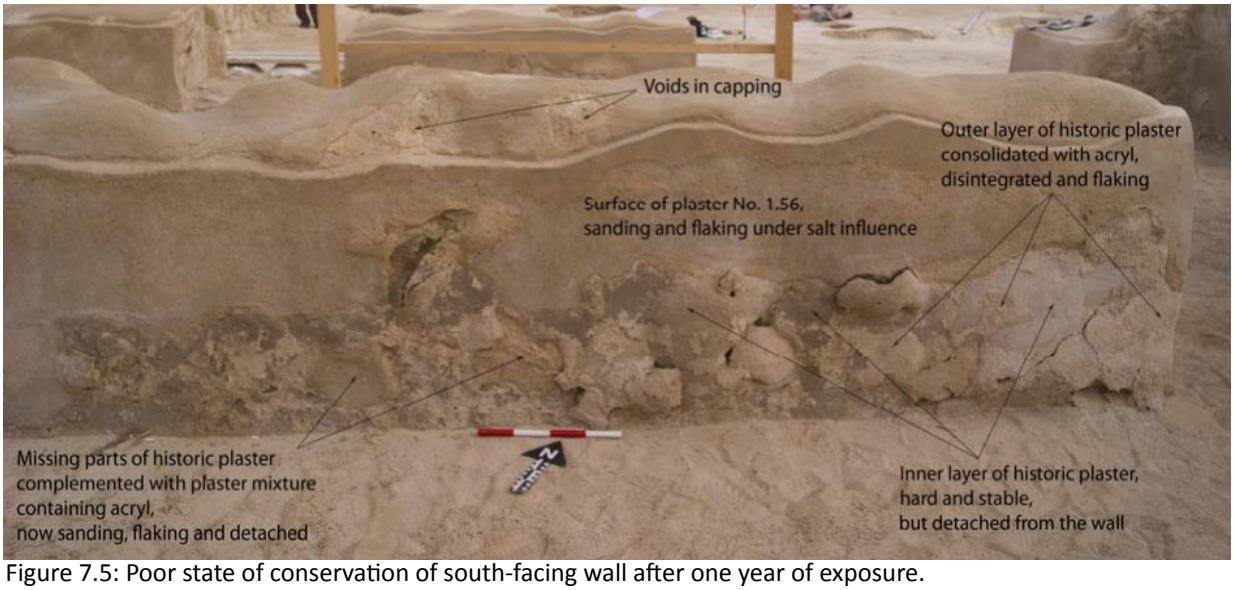


Figure 7.5: Poor state of conservation of south-facing wall after one year of exposure.

7.3.2 ZUEP13

The Outer Town Wall between Towers 17 and 18 (see Chapter 2), with a length of 92m, a width of c. 1m, and a surviving height of 1 - 1.30m, was found in very poor condition. It was documented by photographs and 3D laser-scanning prior to consolidation.

The wall previously restored during 1980s conservation work within Al Zubarah. The outer part part of the wall, facing east, was constructed using at least three different cement mortars and very poor stone qualities, mostly gypsum BE and beachrock AG1 and AG2. Only the two lowest stone courses are historic. The cement mortar was applied on top of each course, leaving empty spaces between the stones. The southern part of the wall was constructed using an extremely hard mortar. The soft and brittle stones used here, not protected by plaster, are extremely eroded. In the northern part of the wall, the cement capping is laid over a plastic foil and has no constructive connection to the wall.

About 40 m of wall beginning at Tower 18 were consolidated during this season, using mortar mixture 1.51. A great quantity of stones for construction was needed and collected from an abandoned beach-clearance structure (QNHER 10229 and 10230) on the seashore north of the town.

7.3.3 Conclusions and Recommendations

The archaeologically exposed architectural structures and features are extremely fragile and vulnerable due to the nature of the originally used building materials as well as to the extreme hostile climatic conditions. Thus careful planning of excavations and conservation measures in constant cooperation of archaeology and restoration teams is essential for the success of the project.

It is essential not to employ materials and techniques that previous seasons' work has shown to be unsuitable for the climatic conditions in Al Zubarah, such as acryl dispersion and hydrated-lime based mortars. Exposed walls should be plasted appropriately as soon as possible, or backfilled to preserve them.

8. Heritage And Outreach

Katie Campbell

8.1 UNESCO World Heritage Nomination

Al Zubarah Archaeological Site was inscribed on the World Heritage List in June 2013, with support from 19 out of the 20 countries eligible to vote on the nomination. The vast majority of the work towards the nomination was carried out in before March 2013, but final additions to the process as well as preparations for the Committee Meeting itself were carried out during the spring work program 2013.

A portable exhibition of 9 roll-up banners was created for the UNESCO Committee Meeting, with text in both English and Arabic. The banners were exhibited at a reception in Phnom Penh following the successful nomination, and displayed the major themes of the site such as pearling, water management and trade. An accompanying brochure in English, French and Arabic was also produced for this event (Figure 8.1).

Figure 8.1: A selection of banners exhibited at the UNESCO World Heritage meeting in Pnomh Penh, June 2013.

8.2 Schools and Outreach Programme

The QIAH project continued the intensive school visit programme during the 2013 spring season at Al Zubarah, and gave guided tours to groups such as the Qatar Natural History Group and Gulf Cooperation Council Geology Department. Such tours typically lasted between 2 and 5 hours and were able to offer detailed and engaging information in English, French or Arabic about pottery, small finds and environmental archaeology at Al Zubarah (Figure 8.2).

Figure 8.2: Students from the Lycee Bonaparte in Doha visiting the site in March 2013

During the 2013 spring season, more than 1300 visitors were given tours around the site and Al Zubarah Fort. More than 1000 of these were school children from from private and international schools in Doha, Mesaieed and Al Khor.

Feedback from teachers and students after visits suggest that the programme is both enjoyable and educational for children and many schools have been visiting the site for three or four years in succession. Teachers comment on lack of similar activities and opportunities for school trips so the outreach programme has huge potential to increase dramatically over the coming years.

In addition to educational material provided for teachers in order to prepare for site visits to Al Zubarah Archaeological Site, an illustrated book has been produced for younger children by Nasreen Mohammed and Caroline Hebron. The book features text in both English and Arabic (Figure 8.3).

8.3 Al Zubarah Archaeological Site

The site was opened by QIAH project staff during the weekends in April and May 2013, making use of the self-guided visitor trail which was installed in March 2012. The boards had suffered wear and tear since their installation due to Al Zubarah's harsh environment and were reprinted and replaced in March 2013. New, harder wearing material for the onsite information panels

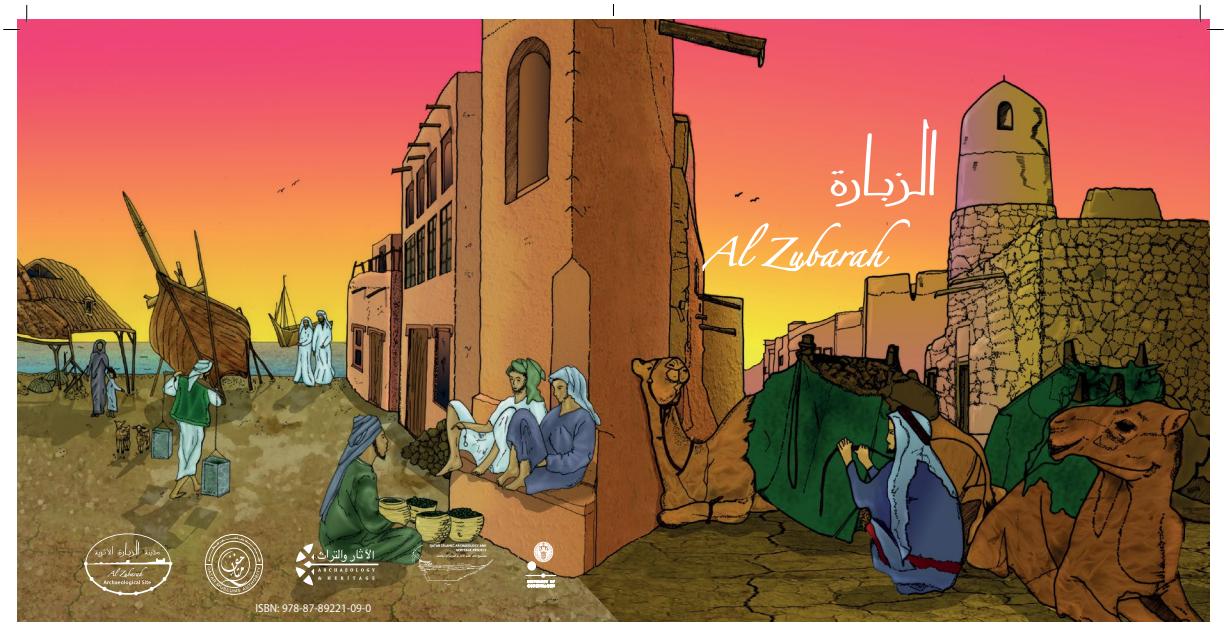


Figure 8.3: Front and back cover of the Al Zubarah children's book.

is currently being tested at Al Zubarah, and the boards will be updated and reprinted for the forthcoming visitor centre and site opening in December 2013. Three new Information panels were produced for the information pavilion situated at Al Zubarah fort car park, updating two previous boards which had suffered sun damage, and adding a new panel describing further archaeological sites in northwest Qatar. A new leaflet, with a map of the site on one side, was produced in both Arabic and English versions to help visitors locate themselves on the site and give them some information to take home (Figure 8.4). Opening the site proved extremely popular with visitors to Al Zubarah Fort.

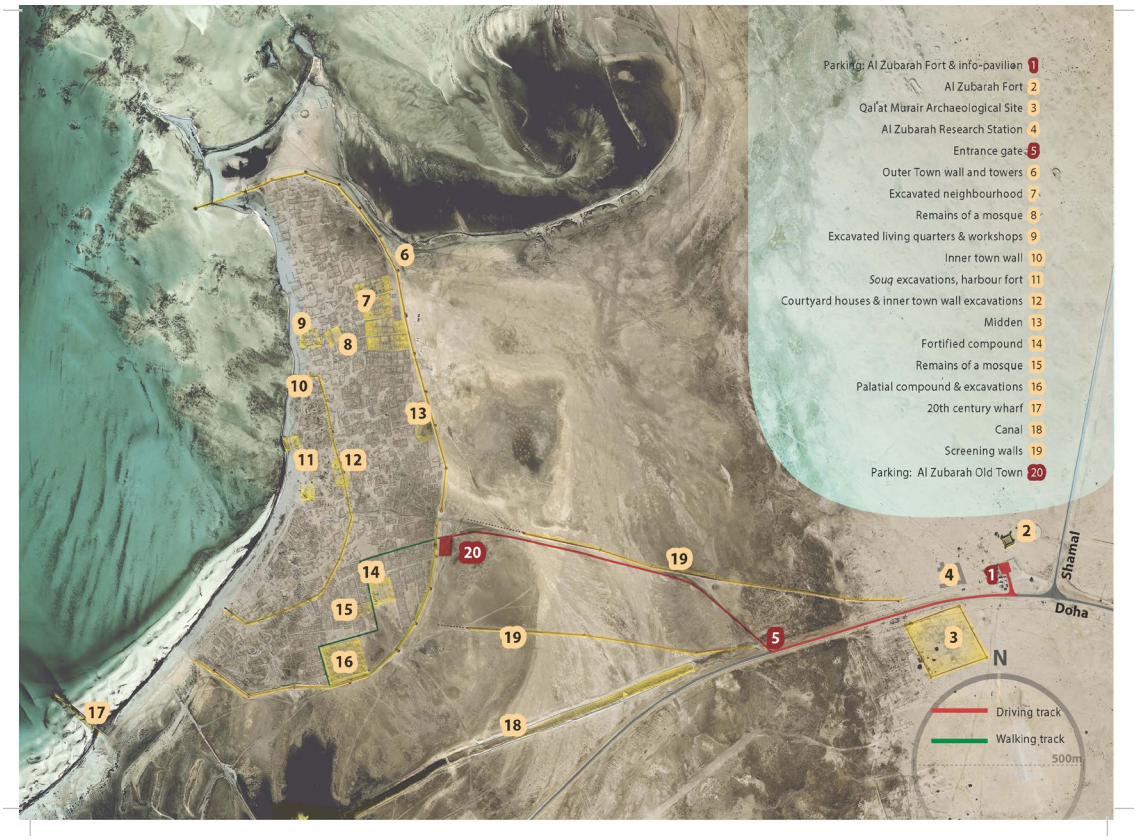


Figure 8.4: Map of Al Zubarah Archaeological Site with visitor tracks and points of interest.

Data was collected on visitor numbers at Al Zubarah Fort for the first time during 2012-13. Although not completely comprehensive, the visitor numbers show that more than 3000 people visit the fort every month in the cooler period between December and April (Figure 8.5). Visitor numbers are significantly lower between May and September with an average of just over 1000 visitors per month, although there were more than 1000 visitors to the fort during the 3 days of Eid al Adha in August 2012. The distribution of men, women and children visiting the Fort, im comparison with the Qatar National Census (2010) - which shows a population consisting of 76% male and 24% female -, demonstrates that Al Zubarah appeals particularly to women and children and/or families (Figure 8.6).

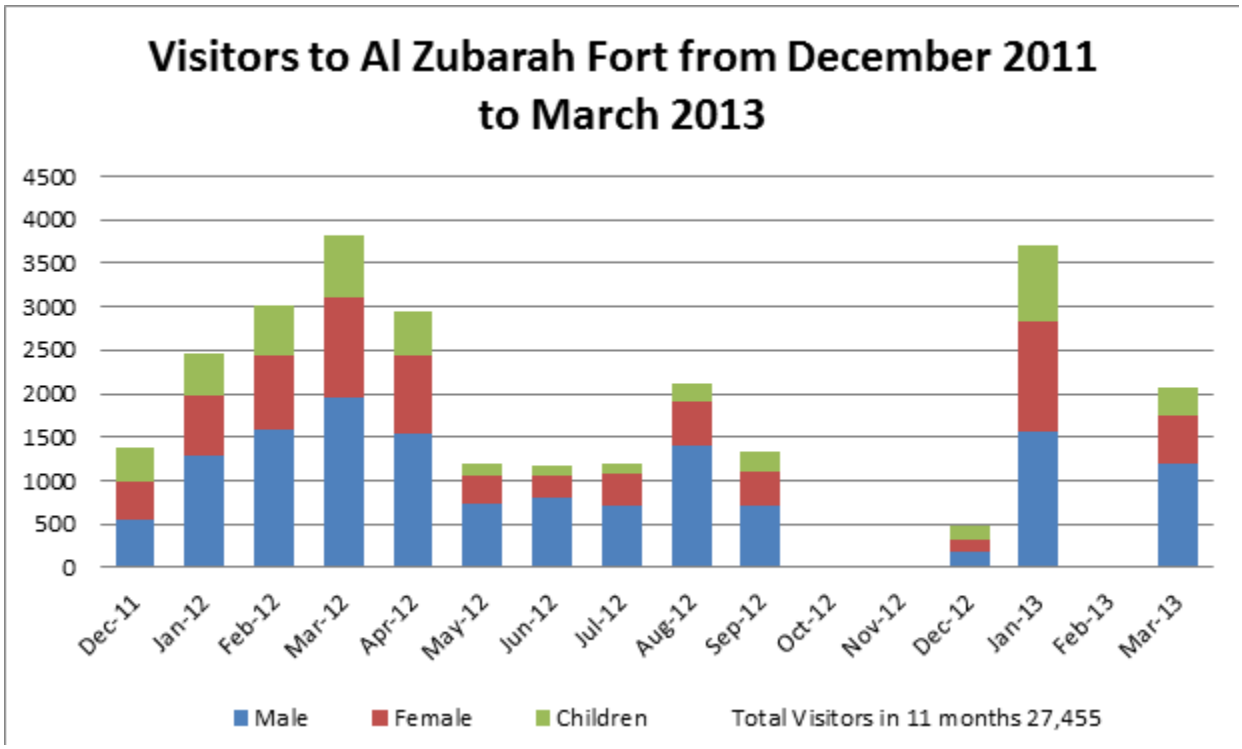


Figure 8.5: Visitor numbers by month.

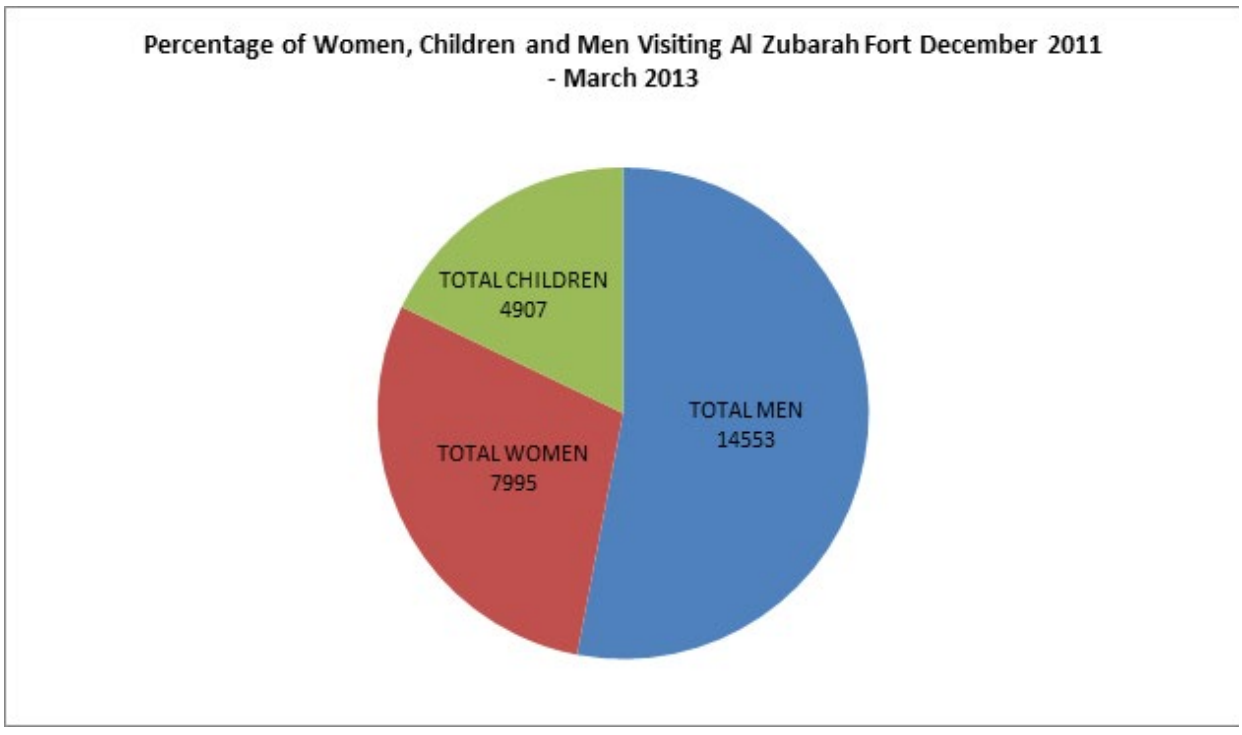


Figure 8.6: Visitor distribution.

8.4 Sponsorship

QMA's commercial department started a three-year partnership with Maersk Oil Qatar in March 2013. The deal provides support for Al Zubarah Archaeological Site and is designed to aid the creation and installation of a Visitor Centre, outreach activities and environmental research at the site. Work has begun to increase the visibility of Maersk Oil Qatar's sponsorship in the presentation material, both at the fort and onsite as well as on flyers, leaflet and press articles.

Planning for the visitor centre is already well underway including concepts for layout, content and production. Much of the information required for written and graphic content has been compiled and is ready to be incorporated into displays. The rooms on the ground floor of the fort have been restored and redecorated as well as fitted with new lighting and electrical capacity for the planned displays (see Chapter 7).

8.5 Future Work

The major focus over the coming months will be the visitor centre and associated publicity and events when it opens. The onsite boards will also be updated and upgraded in the course of 2013. A trail at Freiha and boards at Murair will be planned and hopefully produced before the end of the year.

Material for schools and teachers will be updated and developed further and it is hoped that alongside the Cultural Heritage Tourism department of the QMA and Qatar Tourism Authority, promotion of Al Zubarah and the attractions which will become available there will be increased.

9. Conclusion

A major achievement of work for the Qatar Islamic Archaeology and Heritage Project came shortly after the 2013 field season when, in June this year, Al Zubarah Archaeological Site was inscribed as Qatar's first site on the UNESCO World Heritage List. Representatives from QIAH and QMA travelled to Pnom Penh, Cambodia, to receive the good news.

Together with this international recognition, some major milestones have been reached during the 2013 spring season.

In Al Zubarah, the open-area excavations at ZUEP02 are creating a more complete image of the late 18th century market area with its focus on date processing and storage. It is possible that the image of a series of small shops peddling wares of various kinds, similar to the modern Souq Waqif in Doha, has to be adjusted. Further excavations in the Northern Extension and the link with the previous investigations to the north of ZUEP02 will clarify this situation in the future.

The expansion of the excavations of the palatial compound at ZUEP04 have opened up a unique opportunity to study the well-preserved architecture of wealthy merchants and town rulers as well as their artistic expressions in the form of plaster etchings in several rooms. A programme of recovery and reconstruction of the nearly complete arches, collapsed some time soon after abandonment of the compound, is being developed for future seasons, as these will not only allow a deeper investigation into architectural styles and techniques used in the late 18th century, but also help to present the site better to a 21st century audience. Continued collaborative work between archaeologists, architects and restorers will ensure the success of this important aspect.

The etchings, together with the dhow engraving from ZUEP01, will be studied by Dr John Cooper and Professor Dionisius Agius from the University of Exeter in order to gain greater insight into the depicted vessel types and their possible origins as well as into the people who created them. It is hoped that future excavations into the rooms will uncover further engravings, which will also be cast and prepared for a possible museum display.

Excavations at Freiha have come to a preliminary conclusion this season, although conservation and restoration work in the mosque is due to begin in autumn 2013. With vast quantities of material culture to analyse, however, the study of the occupation of this village and its inhabitants is only just beginning. Investigations of the dating of the various phases as well as Freiha's role in the wider landscape of Qatar, the Arabian Gulf and beyond will shed a new light on this site and its time.

With the UNESCO World Heritage List inscription, the popularity of Al Zubarah Archaeological Site is likely only to increase in the near future. Visitors will soon be able to see Al Zubarah Fort, currently still being restored, and the old town along an existing informative track, with a second walkway planned to include the excavated area at ZUEP02 and the previously excavated and restored *souq*. A ceremonial site opening with a Visitor Centre in the restored rooms of Al Zubarah Fort is planned for the end of 2013.

10. Selected Bibliography

Al Naimi, F., Price, K.M., Cuttler, R. & Arrock, H. (2011). Reassessing Wādī Debayan (Wādī al-Dabayān): an important Early Holocene Neolithic multi-occupational site in western Qatar. *Proceedings of the Seminar of Arabian Studies* 41

Bangsgaard, P. and Yeomans, L. (forthcoming). Zooarchaeological Perspectives on Rural Economy and Landscape Use in 18th Century Qatar. In S. McPhillips and P. Wordsworth (eds). *The Materiality of the Rural Islamic World: Archaeological and Historical Approaches*. Philadelphia: University of Pennsylvania Press

Beech, M.J. (2004). *In the Land of the Ichthyophagi: Modelling Fish Exploitation in the Arabian Gulf and Gulf of Oman from the Late 5th Millennium BC to the Late Islamic Period.* Oxford: British Archaeological Report: International Series 1217.

Bosch, D.T., Dance, S.P., Moolenbeek, R.G., & Oliver, P.G. (1995). *Seashells of Eastern Arabia.* London: Motivate Publishing.

Boxshall, G., Mees, J., Costello, M. J., Hernandez, F., Vandepitte, L., Gofas, S., Hoeksema, B. W., Klautau, M., Kroh, A., Poore, G. C. B., Read, G., Stöhr, S., de Voogd, N. J., Walter, C. T., De Broyer, C. Horton, T. & Kennedy, M. (2013). *World Register of Marine Species*. (Accessed at http://www.marinespecies.org on 2013-09-19).

Colley, S.M. (1990). The Analysis and Interpretation of Archaeological Fish Remains. *Archaeological Method and Theory* 2: 207-253.

DuPont, C. & Altamimi, A.G. (2008). *Shells of the Qatari Shores*. Doha: Ali Bin Ali Press.

House, M. (2010). Excavations in ZUEP02. In T. Richter (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2009-2010.* QIAH: 2010

House, M. (2011). Al Zubarah Excavation Point 2 (ZUEP02). In T. Richter (ed) *Qatar Islamic Archaeology and Heritage Project*: End of Season Report 2010-2011. QIAH: 2011

House, M. (2012). Al Zubarah Excavation Point 2 (ZUEP02). In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2011-2012*. QIAH: 2012

Kuronuma, K. & Ade, Y. (1986). *Fishes of the Arabian Gulf*. Kuwait: Kuwait Institute for Scientific Research

Mackie, D. (2012). Regional Survey. In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2011-2012*. QIAH: 2012

Mackie, D. & Eddisford, D. (2012). Regional Survey. In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project*: End of Season Report 2011-2012. QIAH: 2012

Morales, A. & Rosenlund, K. (1979). *Fish Bone Measurements: An Attempt to Standardize the Measurement of Fish Bones from Archaeological Sites*. Copenhagen: Steenstrupia.

Nymann, H. (2012). Archival Material Related to Later Islamic Al Zubarah. In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2011-2012*. QIAH: 2012

Ragette, F. (2006). *Traditional domestic architecture of the Arab region*. American University of Sharjah

Raje, S.G & Vivekanandan, E. (2008). Vulnerability of Catfish to Fishing: An Investigation Based on the Landings. *Indian Journal of Fisheries* 55: 227-233.

Rees, G. (2010). Excavations at Freiha. In T. Richter (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2009-2010.* QIAH: 2010

- (2011). Excavations at Freiha. In T. Richter (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2010-2011.* QIAH: 2011

- (2012). Excavations at Freiha. In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2011-2012*. QIAH: 2012

Sharabati, D. (1981). *Saudi Arabian Seashells.* London: VNU Books International.

Sorensen, M.L. (2009). EP01.3: The Tower Structure and North Eastern Area. In M. Bille (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2009.* QIAH 2009

Wheeler, D. (2012). Al Zubarah Excavation Point 10. In S. McPhillips (ed) *Qatar Islamic Archaeology and Heritage Project: End of Season Report 2011-2012*. QIAH: 2012

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